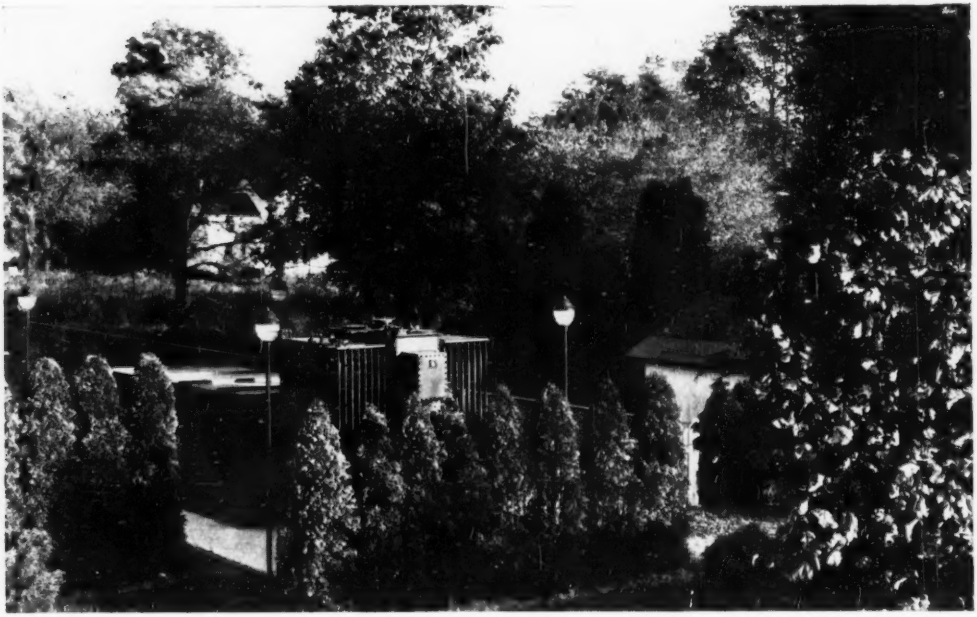
ELECTRICAL WORLD *News Issue*

SEPTEMBER 3, 1949

A McGRAW-HILL PUBLICATION

Charles E. Wilson, 50 Years of Service to General Electric Co

Can beauty and utility be one?...



THIS question must be faced when you consider the use of substations in residential areas where appearance is a factor.

The answer is. . . .

No. . . . when you consider "piece-meal" substations with their unsightly looks and space-consuming design.

Yes. . . . when you use General Electric *unit* substations.

This problem was solved for many utilities when G-E engineers showed them how G-E unit substations with their smooth, integrated lines—plus some incidental landscaping—would easily overcome appearance objections. At the same time the utilities realized the many benefits—such as lower costs and increased reliability—of G-E load-center power distribution.

We'd like to show you how other utilities utilized G-E unit substations. Give us a call, or write for brochure GEA-5155 that shows how you can utilize G-E engineering and service. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

221-59

The Electrical Week

Insurance company investments in electric utilities are a controversial issue with Congressman Celler. Leroy Lincoln, president of Metropolitan Life, sees nothing wrong with the insurance companies' investing their funds in this way. From the record of the House Judiciary Committee, ELECTRICAL WORLD brings their clash of opinion in their own words . . . In Florida last week's hurricane caused much damage to Florida Power & Light facilities. But pre-hurricane planning and modern equipment speeded repair work . . . At a United Nations Conference at Lake Success, N. Y., a paper by Philip Sporn, AG&E president, was hailed by delegates as the "bible" of system integration . . . Western Utility men and power projects played an important part in the AIEE Pacific general meeting and its program . . . And Charles E. Wilson, on Sept 2, completed 50 years with General Electric Co.

As predicted in the centerspread of this issue, fiscal 1950 promises to be a record year for the Bonneville Power Administration. Since the centerspread article was written, BPA has announced three new records. On Aug 17 Grand Coulee produced 30,758,000 kwhr of energy. On Aug 18 Grand Coulee and Bonneville set a joint record of 42,964,000 kwhr. On Aug 20 these two plants maintained a load of 1,925,000 kw for a 60-minute period.

Luckily for utilities not all energy sales are increasing at the same rate as those to rural customers. If they were, the nation would face the greatest power shortage in history. In May the number of rural customers increased 7.9%, but energy sales to these customers increased 38.7% over those in May 1948.

There have been special days, weeks, and months, but the National Association of Domestic and Farm Pump Manufacturers has announced a special year. 1950 will be "National Water Systems Year."

Construction of McNary Dam will make necessary relocation of 83 miles of railroad in Washington and Oregon, of 44 miles of roads, and of 16 miles of utilities lines.

The cost of government has hit a new high of $372 per person annually. That, the Census Bureau tells us, was the tax bill for running the federal, state, and local governments during the year ended June 30, 1948.

The 321 Class A & B privately owned electric companies added more than $1.7 billion net to their utility plant during 1948, the Federal Power Commission reports.

An employee of the Connecticut Light & Power Co has suggested to Baseball Commisioner A. B. Chandler that umpires use a light meter to determine whether or not to call a game because of darkness.

A survey conducted by Consolidated Edison Co of New York among television owners showed that the sets are used on an average of 3.6 hours a day, the greater part after 6 PM. Energy use increased about 15 kwhr monthly.

The top 30 of the 321 Class A & B electric utilities have 52.7% of the assets of the total group.

Notes From The News

A utility tax to relieve the financial problem of Hollywood, Fla., is being considered by the City Commission . . . The persistent drought has forced authorities in northern Italy to ban the use of electricity three days a week beginning Sept 5. In central and southern Italy a two-day-a-week power curtailment has been in force for several months . . . Danville, Va., has reactivated its old Bridge Street plant, out of use for three years. The city has decided not to renew its contract for extra power from the Appalachian Electric Power Co. After September, Danville will rely on its hydro plant in Patrick County, the new Brantly steam plant, and the Bridge Street plant for all its power needs.

It will be 20 years before atomic energy is subject to proper international control and therefore ready for broad non-military use, Secretary of the Interior Julius Krug told a news conference during the United Nations Scientific Conference on Conservation and Utilization of Resources . . . Gordon R. Clapp, chairman of the Tennessee Valley Authority, has been detached from his job temporarily to head an economic survey mission of the United Nations Palestine Conciliation Commission. His assignment, roughly, is to bring Israelis and Arabs together by enlisting them in a common effort to build a healthy economy in their part of the world. . . Georgia Future Farmers of America and their advisers will share prizes totaling $1,000 offered by Georgia Power Co in

Continued on following page

TOO BAD power lines can't come down when hurricane warnings go up, as do the traffic lights above. Here Miami police traffic crewmen take down a signal in preparation for last week's Florida windstorm

its second winter grazing contest to encourage wider attention to year-round pasture programs.

Average use per customer of Portland General Electric Co for the 12-month period ended June 30 was 4,889 kwhr, more than three times the national average and well above the company's 1948 average of 4,553 kwhr . . . The electric power networks of Rumania and Bulgaria have been linked since the beginning of August under an exchange agreement worked out within the program of Moscow's Council for Economic Mutual Assistance. Bucharest power is being transmitted over a high-tension line bridging the Danube to northeastern Bulgaria. Other lines are being built. The arrangement apparently amounts to a fuel loan from Rumania to Bulgaria, which has been lagging in economic revival . . . Those interested in the comparative costs of resuperheating installations will find a survey based on the experiences of 64 utilities in the Sept 10 issue of ELECTRICAL WORLD.

Manufacturers & Markets:

Current orders for new power generating equipment to go into service two or more years from now have declined appreciably in recent months, although utility construction budgets and additions to generating capacity are now at peak levels, according to a statement released by Combustion Engineering-Superheater, Inc. The company reported that some substantial contracts are being placed, however, as indicated by three orders received in August for utility boilers which total $45 million. . . . Tin controls have been eased by the Commerce Department. It removed bans on private imports of pig tin and lifted all controls over how tin must be used in the U. S. except on two products that will be decontrolled Dec 1. Importers, however, must apply to the Commerce Department for licenses before buying foreign tin. . . . For the third successive day, the price of silver moved up half a cent an ounce Aug 26, to 73¢. . . . A reduction in factory inventories of refrigerators plus increased consumer buying has resulted in a recall of 850 workers and plans for increased production at the Westinghouse Electric appliance division plants at Mansfield, Ohio, and Springfield, Mass.

Financial:

Carolina Power & Light Co has asked the North Carolina Utilities Commission for permission to issue and sell 30,000 shares of $5 preferred stock and 200,000 shares of common. Proceeds will help meet an estimated $44,927,000 construction bill through 1952 . . . Savannah Electric & Power Co has sold $4 million worth of 3⅝% debenture bonds, due in 20 years, to the New York Life Insurance Co and the Fidelity-Philadelphia Trust Co. This step retires all bank loans of the utility except for a small amount at the Citizens & Southern Bank of Savannah . . . Federal Power Commission authorization has been asked for a 60,000-share issue of Gulf States Utilities Co $100 par value preferred stock . . . Oregon Hydroelectric Commission has approved sale of $7 million in bonds and 250,000 shares of common stock, par value $20, by California-Oregon Power Co. The money will be used in financing development of new power projects on the North Umqua River, including the Taketee Falls project now under construction.

ELECTRICAL WORLD. Published weekly by McGraw-Hill Publishing Company, Inc. Publication Office, 99-129 North Broadway, Albany 1, N. Y. Editorial and Executive Offices, 330 West 42nd St., New York 18, N. Y. James H McGraw (1860-1948), Founder; James H McGraw, Jr, President; Curtis W McGraw, Vice-President and Treasurer; Eugene Duffield, Senior Vice-President, Publications Division; Nelson Bond, Vice-President and Director of Advertising; J E Blackburn, Jr, Vice-President and Director of Circulation; Joseph A Gerardi, Secretary. Subscription rates: Single copy 35 cents. In the United States, $6 a year, $9 for two years, $12 for three years. Canada, $7 for one year, $11 for two years, $14 for three years. (Canadian money at par.) Pan-American countries, $15 for one year, $25 for two years, $30 for three years. All other countries $20 for one year, $30 for two years, $40 for three years. Entered as second-class matter, November 16, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in U. S. A. Copyright 1949, by McGraw-Hill Publishing Company, Inc. Permission required to reproduce any of contents. Cable address McGRAW-HILL, New York. Member ABP Member ABC

Insurance Companies Invest in Utilities

New York's Emanuel Celler Frowns on Such Concentration of Holdings, But Metropolitan Life's Leroy A. Lincoln Thinks First of Policyholders

What, if anything, will Congress do to restrict or regulate insurance company purchases of utility bonds and debentures? No such legislation is pending. But Rep. Emanuel Celler, New York Democrat and an influential member of the 81st Congress, seems to be thinking along those lines. He brought the idea before the House Judiciary Committee, of which he is chairman, during a recent monopoly investigation hearing.

Celler apparently had two chief concerns. First, he dislikes the extent of insurance company investments in utility securities. Second, as is well known to the utility industry, he opposes the purchase of such issues through negotiated sales, rather than public offerings. The industry also knows any upset of these practices can seriously affect its expansion program, which has depended considerably on insurance company financing.

That's why ELECTRICAL WORLD went to the Committee records for Representative Celler's views on this type of financing and for an able reply. That reply was supplied by Leroy A. Lincoln and Frederic W. Ecker, president and financial vice-president, respectively, of the Metropolitan Life Insurance Co.

REPRESENTATIVE Celler: I, and others like me, who desire to invest in those bonds, are in a great measure deprived of the right to buy those bonds because they are in the portfolios of the insurance companies

Celler: The SEC has been avoided and is avoided, and the Registration Act is avoided by private placements and the huge amounts of loans.

Lincoln: I do not think "avoided" is a proper word. There is no occasion under the theory of the SEC law to have these loans registered.

Celler: There is no need then to resort to the Registration Act.

Lincoln: None whatever.

Celler: And, therefore, efforts are made, as far as possible, to place these loans privately so as to be no need to go to the Securities and Exchange Commission.

Lincoln: Well, I am still thinking of the people that the SEC was established to protect, and they certainly are not the large investors. The large investors are well able to take care of themselves. That is all the SEC was there for.

Celler: Do you not think that where loans of these huge amounts are made that the public should know something about the details of these loans?

Lincoln: Well, I think that is entirely different from the question as to whether they ought to be channeled through the SEC. I do not see that there is any—

Celler: Well, would you say there is publicity attendant upon these privately placed loans? For example, was there publicity when the Equitable Life Insurance Co made a loan to Gulf Oil of $100 million, to Reynolds Tobacco of $90 million, to American Tobacco of $75 million, and when Prudential made a loan of $85 million to International Business Machine, and $50 million to American Telephone & Telegraph?

Lincoln: Mr Ecker reminds me that in all these cases the story about the investments finds its way into the newspapers and is treated at considerable length.

Celler: Do you think that is adequate publicity?

Lincoln: I do not know why not. What more would they get if it went through the SEC?

Celler: Are we told, for example, the amounts of commission paid to the bankers for arranging these loans?

Lincoln: I do not suppose you are, and I doubt if that is a very important factor.

Celler: Well, do you not think that is important, Mr Lincoln?

Lincoln: I cannot see any importance in it at all. If the borrower wants to go to a lawyer or an investment banker or somebody else to counsel with him, he can go there and he can pay the fee, the same as he would pay his lawyer, but there is no occasion for the public to be in on it. I do not know that there is any secret about it, but I do not see the importance of it.

Celler: If the issue were registered with the Securities and Exchange Commission, the public would have the facts, would they not?

Lincoln: They may have them, but they might be stored away somewhere in the SEC's documentations.

Celler: Even so, if anybody wants or wishes the facts, they would ferret the facts out.

Lincoln: They could ferret the facts out from us, I dare say, or the investment bankers. I would not say there was any great secret there.

Celler: Well, of course, that may be the case with your company, but there are 580-odd insurance companies probably doing the same thing, making privately placed loans, and I do not know whether their portfolios are—

Lincoln: I am afraid you are wrong in that. I think the privately placed loans are in the main relatively small number of companies. They are not necessarily the largest, but I think the group is small, is it not?

* * *

Celler: I will take that answer, namely, that the smaller companies very likely do not make these privately placed loans, but I take it, therefore, that the larger ones do.

Lincoln: Yes, indeed.

Celler: Now, if what the Securities and Exchange Commission tells us is true, 90% of all privately placed bond issues were taken by life insurance companies, and the 12 largest companies have a little under $40 billion, would they not have the power to elbow almost all investors off the sidewalk, as it were, with that particularly vast amount of money?

Lincoln: Well, I would suppose that that type of loan would not go to the average type of investor. That type of loan is along where they are looking for

some large-scale investor in which they would lodge a large-scale loan.

Celler: Would they not go to investment bankers? That is where they went before, did they not?

Lincoln: Then the question arises, are we, as trustees for the policyholders' funds, to take a leaf out of our book and look at the investment bankers or what?

* * *

Celler: I am not complaining of what the Metropolitan may do or what the other insurance companies may do. I am addressing myself to the system that has grown up. I am groping, like we all are, with respect to whether it is right, and whether it is for the best interests of the nation to allow such great concentrations in the hands, shall I say, of the few individuals, a comparatively few individuals—the presidents of these insurance companies. I do not know, Mr Lincoln, and we want to get the enlightment, all the enlightment we can, on this subject.

Now, we know, for example, that you yourself cannot know all that is happening within the confines of the four squares of Metropolitan Life.

Lincoln: Any more than you know all that is happening in the government.

Celler: I do not. Of course, I could not possibly do that. It is humanly impossible. You have to rely upon others. You cannot tell what is happening. With all due respects, you rely upon those in the higher echelons and the middle echelons, and the lower echelons of your company.

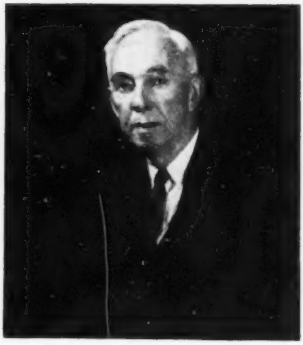
Now, there are human frailities, there may be favoritism shown; there may be nepotism shown. Nepotism was brought out and clearly shown to be the fact in some of the life insurance companies as a result of the investigation by the Temporary National Economic Committee and that nepotism and that favoritism may come.

What I am concerned about is the following: Is it right, when we consider the best interests of the nation, to have this vast concentration of money in the hands of a few individuals to be disposed of as they see fit?

Lincoln: I am sorry but that is not quite a correct premise. It is not disposed of as they see fit at all. It is disposed of in accordance with the rules and regulations of law, the supervision of the New York Insurance Department, the supervision of 47 other departments, the supervision of the District of Columbia Department. We are accountable to all of them. It is not as we see fit. That is not a good premise.

* * *

Celler: If the insurance companies



PRESIDENT Lincoln: We are buying them as an investment in behalf of our—in our case—about 33 millions of policyholders

are taking a goodly portion of these bonds of public utilities—and I assume they are good bonds; otherwise the insurance companies would not take them—then I, and others like me, who desire to invest in those bonds, are in a great measure deprived of the right to buy those bonds because they are in the portfolios of the insurance companies.

Lincoln: We are buying them as an investment in behalf of our—in our case—about 33 millions of individual policyholders. We are seeking to do the best we can on behalf of those policyholders who have taken their life insurance with us and whose reserves we have to invest and keep invested. Now you may want some, and the 33 million may want some; and there we are.

Celler: I said before, Mr Lincoln, I probably would do exactly what you have done, but I also say that when you or I do that, to that degree we deprive the investing public of its right to procure good issues.

Lincoln: Well, the trouble with that premise again is that what you call the investing public is not in the market for this sort of thing, and we are in the market for it, or for 33 million policyholders.

Celler: I have spoken to any number of investment bankers, and they are in the market for these loans.

Lincoln: We think that our duty is to see the getting of the best investment we can for 33 million individuals who have entrusted their life insurance to us.

* * *

Celler: Is there not a tendency when loans are privately placed to exact from the borrower a high rate of interest, a higher rate than would be the case if there was competitive public bidding?

Ecker: I understand that the question was, do the insurance companies making private placements not exact a higher interest rate out of the borrower than would otherwise be the case. My answer—

Celler: Than would otherwise be the case if there was competitive public bids.

Ecker: I would say, no. This business is a very competitive business, and if for example, a borrower is in our office endeavoring to get a loan from Metropolitan, and we name too high an interest rate, why, they can go across the street to the New York Life Insurance Co or across the river to the Prudential or to the Northwestern Mutual or up to Boston or someplace else and get a lower rate. We are in competition with the investment bankers, and we are in competition with all other life insurance companies all at the same time.

Celler: My question was that in many instances various companies unite and pool their interests and take over an issue and divide the issue among themselves, so that it is not always a case where, from the interest rate being too high, the borrower can shop around and go to another life insurance company.

Ecker: Now, let us get the record straight on two or three things in connection with this business. In the first place, you spoke about insurance companies cutting out the individual investors, is what I understood to be the case, and then afterwards it was shifted to being cutting out the investment bankers. But, let us get it straight on this point.

Celler: I am not so much interested in investment bankers as I am in the investing public.

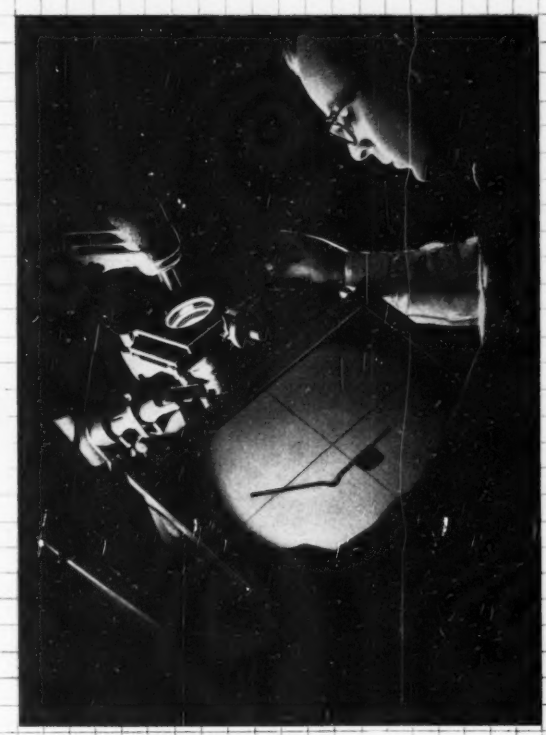
Ecker: Yes, that is just the point that I want to make. In the good old days when good bonds could be bought to yield 5% and more, individuals were very much interested in them. But today there just is, practically speaking, no interest on the part of individual investors in putting their money out at 3% and under, which is the present market for high-grade securities, and which is the market, or at least has been the market for a number of years now. So, these bonds are going to go into the institutions. It is just as natural as water flowing down hill.

What was taking place before was that the issues were underwritten by the investment bankers, but the ultimate residing place of these issues was the life insurance companies, and so on a comparatively speaking small number of telephone calls they placed all of their issues with a comparatively speaking small number of insurance companies.

QUALITY CONTROL DATA SHEET

SYLVANIA FLUORESCENT FIXTURES

SYLVANIA'S OPTICAL COMPARATOR AIDS IN RIGID INSPECTION OF FLUORESCENT FIXTURE PARTS



The Materials Inspection Department uses the instrument shown above to inspect by direct enlargement of the part, all critical parts of the Sylvania fluorescent fixtures.

An "OK" by this department is essential before production starts. This control, this instrument—and a myriad of others—is typical of the kind of rigid inspection that constantly goes on in Sylvania plants . . . to assure lighting products of unsurpassed quality! For full details on the entire Sylvania line, write Advertising Dept. L-8409, 500 Fifth Ave., New York 18, N. Y.

SYLVANIA ELECTRIC

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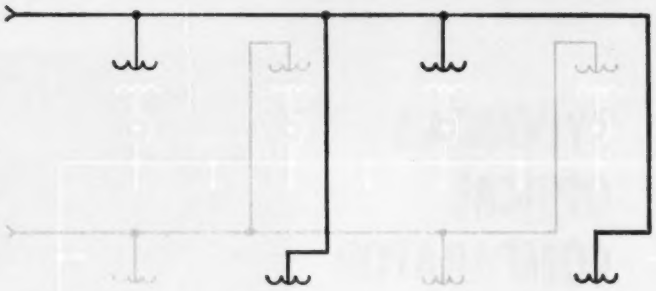
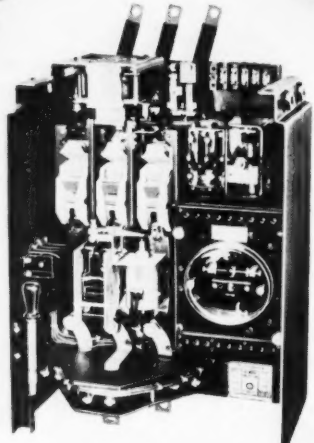
YOU CAN BE **SURE**.. IF IT'S

Westinghouse



The secondaries of this low-cost, overhead system usually form a loop, as shown here. The loop is a 3-phase, 4-wire overhead circuit consisting of open-wire or cabled conductors. Power is supplied to the secondaries through distribution transformers and associated network protectors.

THE KEY TO THE SYSTEM...



The Westinghouse CM-88 Network Protector

The protector is an automatic, electrically-operated air circuit breaker, controlled by network relays. It was specifically developed to provide the economical answer to light-duty, overhead secondary network systems. It comes in a weatherproof housing, arranged for direct pole mounting. Two ratings are available for use with 150 E.V.A., 3-phase bank and smaller transformer banks.

Light-Duty
Overhead Secondary Network Systems

NOW Economically Possible

Now, small outlying business sections in large cities, heavily loaded residential areas, and commercial districts in small cities and towns . . . can have high-quality network service . . . *at a cost comparable with that of the ordinary radial system.*

REASON:

EXISTING SYSTEM EQUIPMENT CAN BE USED!

PRIMARY FEEDERS, now existing, can often serve a light-duty overhead secondary network with only a few additional lateral taps. Present transformer capacity can remain practically unchanged because overhead feeders can be restored to service quickly after a fault occurs.

TRANSFORMERS, of the standard type, now existing, can often be used. Three-phase network transformer banks required in this system can be formed by using your present single or three-phase transformers. Installation of a standard Westinghouse 3-phase distribution transformer will accommodate load growth easily . . . economically.

SECONDARIES now existing, may be used in many cases. Since both power and lighting loads are served from the same network secondaries, the copper now on your poles may be more than enough to form the three-phase, four-wire secondaries.

CONSUMER SERVICES—many can remain unchanged.

May we be of help in YOUR network planning? Call your nearest Westinghouse office or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-97141

For a more complete discussion ask for a copy of Central Station Digest, No. 26. This issue is devoted entirely to analysis of overhead secondary network systems, their advantages and economics. You'll find it timely, authoritative and helpful.

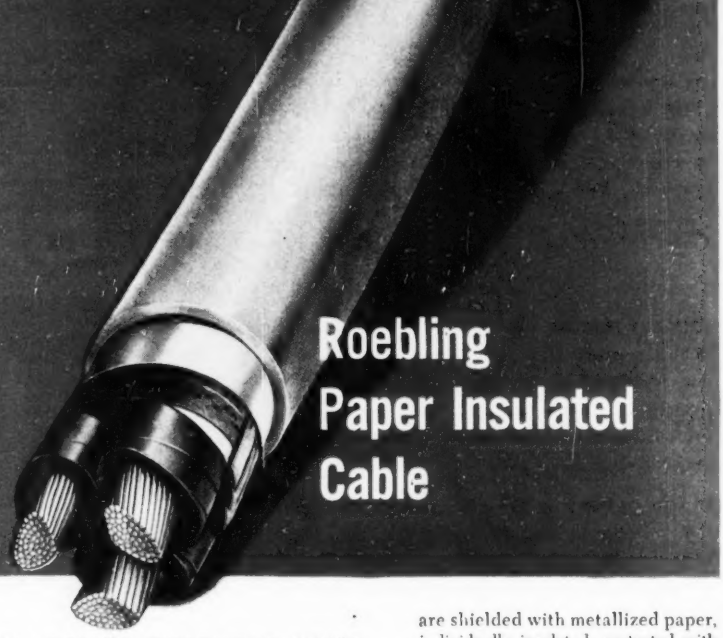
Westinghouse

SYSTEM PLANNING SERVICE

ROEBLING

SAVE...

WITH UNDERGROUND INSTALLATION



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YOU'VE EVERYTHING TO GAIN and nothing to lose (except costly maintenance and eyesores) when you abolish overhead lines. Today's best practice is to put circuits underground . . . and to install Roebling Paper Insulated Lead Encased Cables for long, uninterrupted service at lowest cost.

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ROEBLING

☆ A CENTURY OF CONFIDENCE ☆

HURRICANE THAT SWEPT Florida last week left Florida Power & Light Co power lines in an orderly row along this street in a residential section of West Palm Beach

Planning and Mechanical Equipment Pay Off as Hurricane Hits Florida

"Operation Hurricane" and modern mechanical equipment paid off for the Florida Power & Light Co last week as a hurricane swept across Florida and seriously damaged the system's facilities.

"Operation Hurricane" was the plan drawn up by the utility for handling hurricane damage. Only two days before the storm struck company employees had conducted a full scale dress rehearsal of the parts they were to play.

The company had ready five mobile units to supply power for emergency service. These were rushed where needed. For customers with home freezers but no electric service, 100,000 lb of dry ice was flown in and distributed.

For repairing transmission lines the company rushed into service five large tractor-type booms to set up transmission H-frames, poles, and river crossings. These tractors were handling structures up to 55 ft in height.

FP&L used its own aircraft to patrol lines and to transport personnel to critical areas. Repair crews were flown into the struck area from all over the Southeast. FM radio also proved of unusual value. For several days it was the only quick, reliable means of communication around the system.

A by-product of the hurricane was the destruction by fire of a $500,000 substation at Arcadia, when the rain and wind caused a short circuit.

Although FP&L bore the brunt of the hurricane, all other Florida utilities were struck. In most cases the damage was to distribution systems. Municipals lacking the resources of the privately owned utilities had more difficulty in getting repairs made.

Though the hurricane hit Florida, an extremely severe windstorm swept up the Eastern Coast as far as Connecticut. All utilities in this extensive area told the same story. The greatest damage was done when tree limbs were tossed across lines. Some transmission lines were lost, but in most cases they were quickly repaired or power was brought in over other lines.

"Bible" of System Integration Offered by Sporn at Resources Conference

Fundamentals of power system integration were outlined Aug 30 by Philip Sporn, president of American Gas & Electric Co, at the United Nations Scientific Conference on Conservation and Utilization of Resources (UNSCCUR) at Lake Success, N. Y. Delegates acclaimed Sporn's paper as the "bible" of system integration and the AG&E system as setting the pattern to which most power aggregations should aspire.

It was admitted, however, that it might be a long time before political and economic difficulties of Western and Central Europe would be resolved to the point where much of the AG&E pattern could be followed. A. V. Karpov, Pittsburgh, in fact, felt that any European grid would have to be founded on calculated risks and be content with less superlative reliability and frequency control.

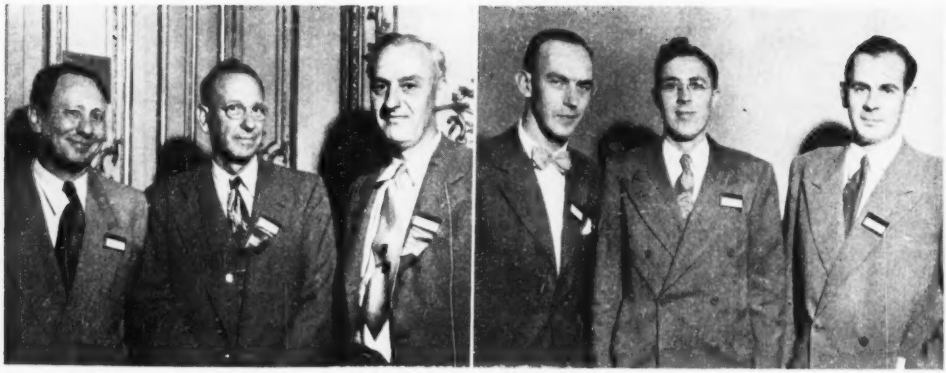
Merrill De Merit of TVA said he was in complete accord with the enumerated conclusions of the Sporn paper but pointed out that a system like TVA, dominantly hydro, has to be operated on slightly different principles from those of a thermic system like AG&E if only because of the demands of flood control and navigation as well as power generation.

Chief Engineer Lindemann of (Norwegian) Oslo Lysverker said he was perplexed by the spread of the generator ratings which appeared in this paper and the companion papers by Sir John Hacking and P. H. Ailleret as the most economical size. The answer appeared to be that American load concentration and untrammeled technology supported ratings substantially in excess of European commitments or plans. Sporn explained that the entire AG&E system efficiency in June was 13,369 Btu (25.7%) whereas the most efficient unit is capable of 9,300 Btu (36.8%). His objective in purchasing 5 duplicates is to attain an average system efficiency of 11,000 Btu (31%) by 1952. He deplored the delusion that the way to ride through capacity shortages is to lower frequency—his answer is to drop dispensable load.

Sir Harold Hartley presented for his British Electricity Authority associate Sir John Hacking a paper on the evolution of the British Grid announcing that two sizes of turbo alternators have been standardized for new stations (1) 30 Mw for 600 psi/850 F and (2) 60 Mw for 900 psi/900 F. Experimental units of 1,500 psi/1,050 F are planned. Under construction are two 15-Mw gas turbine sets for peak load operation.

P. Ailleret reported as chairman of the Committee on Electric Power of the Economic Commission for Europe that the principal problems uncovered in the preliminary survey of Western European power integration are inadequacy of capacity and successful functioning during drought periods. There are lines across borders, but considerations of security and economics prevent any such comprehensive pooling as is typified by the AG&E, TVA, BPA, and other American systems.

The conference, which is being held at Lake Success, has attracted leading scientists from all parts of the world to its program.



TRANSMISSION session at AIEE Pacific meeting featured papers by E. M. Wright, center, Pacific Gas & Electric Co; and O. A. Demuth, right, Bonneville Power. W. E. Enns, Portland General Electric Co, was chairman. In right panel are A. Rusck, left, and B. Rathsman, right, who told of a 380-kv transmission line now under construction in Sweden before a session presided over by W. R. Johnson, PG&E

Mullendore Tells Engineers to Down Forces of Restrictive Government

THE ENGINEER "has a special responsibility to defeat the forces now forging chains of restrictive governmental power and authority." W. C. Mullendore, president of Southern California Edison Co, told the American Institute of Electrical Engineers at its Pacific general meeting. The sessions were held Aug 23-26 at San Francisco.

Advances in technology, communications, and transportation by the engineer, Mullendore said, have enabled the demagogue to reach and persuade mass populations to surrender power to a reactionary old-world type of centralized paternalistic government which slowly paralyzes individual initiative and self-reliance, the indispensable components of freedom. The engineer must be more than an engineer in the world of today. The world needs his trained mind and analytical ability at a time when the whole advance of civilization is threatened.

Appointment of T. G. LeClair as AIEE representative to an exploratory conference in October of the Engineers Joint Council Committee on Unity was announced by James F. Fairman, AIEE president.

Design and construction of a 600-mile, 380-kv, double-conductor line to transmit 300 Mw southward from major water resources above the Arctic Circle in Sweden were described by A. Rusck, director general, and B. Rathsman, chief engineer, of the Swedish State Power Board. The line, along with a hydro plant built in solid rock 250 ft below ground level and an intermediate transformer station, will be put into operation at 380 kv by the end of 1951.

Rathsman also described application of series capacitors for compensation of existing 220-kv transmission. Excess voltage protection is provided by a spark gap adjusted for ignition at 2.8 times rated capacitor voltage and able to stand burning for one minute.

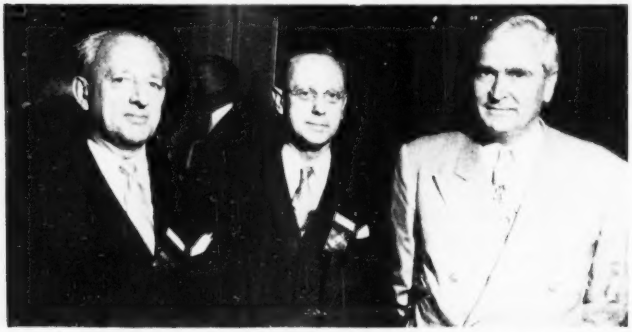
Need for further investigation of fault-arc deionization time was indicated by disagreement on relative importance of fault magnitude and duration, in papers presented by E. J. Harrington, Bonneville Power Administration, and A. C. Boisseau, General Electric Co.

Highly satisfactory results of tests of load interrupter switches for small loads at 115 kv were reported by O. A. Demuth, Bonneville Power Administration. Tentative plans are being formulated, he added, for extending tests of this nature to 230 kv.

The postwar construction program of the Pacific Gas & Electric Co to yield net increases of 987,000 kw steam and 337,000 kw hydro was described by W. R. Johnson. It now appears, he said, that in view of the economy of double circuit construction and gradually decreasing average transmission distance on the PG&E system, voltages higher than 230 kv offer no economic advantage. The period beyond 1951 will therefore see continued expansion of the system at 230 kv.

Construction of such a double circuit 230-kv line, 202 miles long, with one circuit and two ground wires installed, for a total cost of $21,000 per mile, was described by E. M. Wright, also of PG&E.

Expansion of the Pacific Coast telephone network with new microwave



GEORGE C. TENNEY, left, chairman of the Pacific general meeting of AIEE; James F. Fairman, AIEE president; and W. C. Mullendore, president of Southern California Edison Co

channels, a radio relay system, and coaxial cables suitable for television was outlined by D. I. Cone, Pacific Telephone & Telegraph Co. Completion of a four million-ke radio relay system will provide a television link between San Francisco and Los Angeles in 1950.

Design of a simple and economical band stopping filter to attenuate a broad band of frequencies was proposed by R. H. Miller, PG&E. Such a filter is needed to make a broad band power line carrier system commercially practicable. Development of a broad band elimination filter, he said, would make feasible the use of power lines for multichannel carrier telephony by methods well-established in the telephone industry.

•

Bill in Conference

The Interior Appropriations Bill this week was in the hands of the House-Senate Conference Committee. Interior still has hopes of keeping all increases granted by the Senate and of winning back all funds approved by the House but eliminated by the Senate. In the latter category are funds for two California projects, the Delta steam plant and the Central Valley transmission lines.

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Mason Heads Ohio PUC

Harold L. Mason, Upper Sandusky, has been appointed chairman of the Ohio Public Utilities Commission for a term expiring Feb 1, 1951. He replaces Harry Miller, Columbus.

Charles E. Wilson, GE President, Completes 50 Years with Company

(See Front Cover)

YESTERDAY, Sept 2, supposedly was just another day in the life of Charles E. Wilson. He came to work at his New York office, ready to carry on the duties of president of the General Electric Co. But even if he had wanted to, there were too many employees, too many persons in industry, too many leaders in other walks of life to remind him that this day marked the completion of 50 years service with and to General Electric.

And, with 50 years of service behind him, Charley Wilson is no old man. In part, this can be accounted for by his splendid physique, but to a far greater extent it can be attributed to the lack of child labor laws back in 1899. He was only 12 years old when he started his rise from office boy with the old Sprague Electric Co to president of GE.

Wilson's formal schooling naturally was meager, but he supplemented it in night school, where he studied accounting and, by correspondence courses in engineering.

At Sprague his advancement was slow but steady. He moved from office boy through the shipping room to factory accountant, production manager, assistant factory superintendent, and then sales manager. After the conduit business was transferred from Sprague to GE (1918), he became assistant general superintendent of the company's Maspeth, L. I., and New Kensington, Pa. Works.

Then his promotions became more frequent, and each gave him a better understanding of GE's vast and diversified holdings. In 1923 he went to Bridgeport, Conn., as managing engineer in charge of the conduit and wire business. Two years later he became assistant manager of the works.

Elected Vice-President

In 1928 Wilson was named assistant to the vice-president in charge of the merchandise department of GE. His efforts then were principally devoted to manufacturing problems. In 1930 he was appointed manager of the merchandise department in charge of engineering, manufacturing, and sales. In December of that year he was elected vice-president and a member of the newly formed appliance sales committee. In 1935 he was assigned the additional responsibility of directing all appliance activities, including refrigerators, electric ranges, kitchen appliances, and heating and air conditioning equipment.

Wilson was elected executive vice-president in 1937. This was a new position involving responsibilities for all company departments. And two years later he succeeded Gerard Swope as GE president. He was the fourth to head the company that was only seven years old when he became office boy at Sprague. His other predecessors were Charles A. Coffin, company founder, and Edwin A. Rice, Jr.

Served U. S. during War

During the war he resigned all private business connections and went to Washington at the request of President Roosevelt. He served as vice-chairman of the War Production Board and later as executive vice-chairman with full authority over all war production.

Dr Wilson, he has received honorary doctorates from nine universities, has won many honors as a citizen. He has served as chairman of the National Planning Association, as co-chairman of the National Conference of Christians and Jews, and as a member of the National Labor-Management Panel, National Security Resources Board, Commission on Universal Military Training, Taft-Hartley Advisory Board, and the National Committee for Strengthening Congress.

KNOX T. HUTCHINSON left, takes the oath of office as Assistant Secretary of Agriculture. In center is Secretary Charles Brannan, on right Judge Samuel E. Whitaker

Truman Backs Interior on Central Valley Issue

PRESIDENT TRUMAN has virtually ordered the Army Engineers to stop planning and building hydroelectric plants in California. The order came in his partial endorsement of a billion-dollar Reclamation Bureau plan for development of the Central Valley drainage basin. The White House sent the Bureau's program to Congress Aug 30.

The President's ruling in favor of the Interior agency, as opposed to the Engineers, came in his message to Congress accompanying the Reclamation program. The Bureau, he asserted, has the responsibility for developing "multiple-purpose dams" in the area. The Engineers should limit their activities to "dams and other works exclusively for flood control."

Reclamation's Central Valley development program had been lying on the President's desk since July, 1948. Based on a 1945 preliminary report, it called for construction of 38 new major reservoirs and 28 hydro plants with an ultimate combined capacity of 1,697,000 kw. Total cost, based on 1948 prices, would be $564,896,000. This is in addition to the $411 million Secretary Krug estimates will be needed for the present Central Valley project.

Wants 750,000 kw Steam

In addition the Bureau asked authorization of 750,000 kw in steam capacity. Apparently the proposed 240,000-kw Delta steam plant is included in this total.

The President's specific recommendations fully supported the Bureau's effort to oust the Engineers from multipurpose projects. They included the following:

That Congress authorize and appropriate funds for the Bureau to build hydroelectric plants at the New Melones, Tulloch, and Pine Flat Reservoirs. New Melones, on the Stanislaus River, has been authorized by Congress for construction by the Engineers, though construction has not started. The Engineers are now building Pine Flat Reservoir on the Kings River.

That construction authorizations for New Melones, Black Butte Reservoir on Stony Creek, and New Hogan Dam on the Calaveras be transferred from the Engineers to the Bureau. None of these is underway.

That, upon completion by the Engineers, the multipurpose Pine Flat Isabella (Kern River), Folsom (American River), Terminus (Kaweah River), and Success Reservoirs (Tule River) be operated and maintained by the Bureau.

The Reclamation Bureau plan called for immediate authorization of multipurpose projects with 583,500 kw of generating capacity. The plan also called for early construction of a 135,000-kw steam plant at an unspecified location.

Acquires Oregon Utility

Pacific Power & Light Co has acquired the Athenia Light & Power Co in eastern Oregon, adding about 300 customers by the transfer. Power for the Athenia system had been supplied at wholesale by PP&L before the transfer was made.

MEETINGS

Maryland Utilities Association
Fall Conference, Cavalier Hotel, Virginia Beach, Va., September 9-10.

Instrument Society of America
Clinic on Maintenance of Industrial Instruments, Statler Hotel, St. Louis, Mo., September 9-12; Annual Convention, Municipal Auditorium, St. Louis, September 12-16.

Rocky Mountain Electrical League
Fall Convention, Stanley Hotel, Estes Park, Colo., September 11-14.

Missouri Valley Electric Association
Rural Round-Table, President Hotel, Kansas City, Mo., September 14; Sales and Rural Conference, President Hotel, Kansas City, Mo., September 15-16; Accounting Conference, Robidoux Hotel, St. Joseph, Mo., October 20-21.

Municipal Electric Utilities Association of New York State
Annual Conference, Hotel Murida, Long Beach, L. I., New York, September 14-16.

Public Utilities Association of the Virginias
Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., September 16-17.

American Chemical Society
National Meeting, Hotel Traymore, Atlantic City, N. J., September 18-23.

Southeastern Electric Exchange
Engineering and Operating Section, Hotel Roanoke, Roanoke, Va., September 19-20; Accounting Section, Henry Grady Hotel, Atlanta, Ga., September 22-23; Personnel Administration Section, Henry Grady Hotel, Atlanta, Ga., September 23; Sales Conference, Biltmore Hotel, Atlanta, October 26-28.

Illuminating Engineering Society
National Technical Conference, French Lick Springs Hotel, French Lick, Ind., September 19-23.

Pennsylvania Electric Association
Annual Meeting, Benjamin Franklin Hotel, Philadelphia, Pa., September 20-21; Prime Movers Committee, Hotel Edison, Sunbury, Pa., October 6-7; Transmission and Distribution Committee, Fort Ligonier Hotel, Ligonier, Pa., October 20-21.

★Relay Committee, Americus Hotel, Allentown, Pa., October 13-14.

★Systems Operation Committee, Split Rock Lodge, Blakeslee, Pa., October 20-21.

★Electrical Equipment Committee, Hotel Edison, Sunbury, Pa., October 27-28.

★Communications Committee, Benjamin Franklin Hotel, Philadelphia, Pa., November 3-4.

Edison Electric Institute
Accident Prevention Committee, Robert Treat Hotel, Newark, N. J., September 22-23; Electrical Equipment Committee, Hotel Van Curler, Schenectady, N. Y., October 3-5; Meter and Service Committee, Leland Hotel, Springfield, Ill., October 3-5; Transmission and Distribution Committee, Lord Baltimore Hotel, Baltimore, Md., October 31-November 1; Prime Movers Committee, Sheraton Hotel, Rochester, N. Y., October 10-11.

Wisconsin Utilities Association
Annual Convention, Accounting Section, Dell View Hotel, Lake Delton, Wis., September 22-23; Joint Annual Convention, Electric and Gas Sections, Schroeder Hotel, Milwaukee, November 21-23.

National Electronics Conference
Edgewater Beach Hotel, Chicago, Ill., September 26-28.

American Society of Mechanical Engineers
Fall Meeting, Lawrence Hotel, Erie, Pa., September 27-30.

★Annual Meeting, Hotel Statler, New York, N. Y., November 27-December 2.

Indiana Electric Association
Annual Convention, French Lick Springs Hotel, French Lick, Ind., September 28-30.

National Television and Electrical Living Show
Second Annual Show, Sponsored by Chicago Electric Association, Chicago Coliseum, October 1-9.

National Association of Corrosion Engineers
South Central Region, Adolphus Hotel, Dallas, Tex., October 3-4.

Association of Iron and Steel Engineers
Annual Convention (without exposition), William Penn Hotel, Pittsburgh, Pa., October 3-6.

Canadian Electrical Manufacturers Association
Annual Meeting, General Brock Hotel, Niagara Falls, Ont., Canada, October 4-6.

Iowa Utilities Association
Management Conference, Hotel Fort Des Moines, Des Moines, Iowa, October 10-11.

American Society for Testing Materials
First Pacific Area National Meeting, Fairmont Hotel, San Francisco, Calif., October 10-14.

American Standards Association
Annual Meeting, Waldorf-Astoria Hotel, New York, October 11-15.

International Association of Electrical Leagues
Annual Conference, Hotel Cleveland, Cleveland, Ohio, October 12-15.

Electrochemical Society
Fall Congress, La Salle Hotel, Chicago, Ill., October 12-15.

American Institute of Electrical Engineers
Midwest General Meeting, Netherland Plaza Hotel, Cincinnati, Ohio, October 17-21.

American Welding Society
Annual Meeting, Hotel Cleveland, Cleveland, Ohio, October 17-21.

National Safety Council
National Safety Congress and Exposition, Stevens, Congress, Morrison, Sherman Hotels and the Palmer House, Chicago, Ill., October 24-28; Electrical Equipment Section, Stevens Hotel, October 26-27.

National Metal Trades Association
Annual Convention, Palmer House, Chicago, October 26-28.

National Electrical Contractors Association
Annual Convention, Rice Hotel, Houston, Tex., November 8-11.

National Electrical Manufacturers Association
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., November 14-18.

Refrigeration Equipment Manufacturers Association
All-Industry Refrigeration and Air Conditioning Exposition, Atlantic City Auditorium, Atlantic City, N. J., November 14-18.

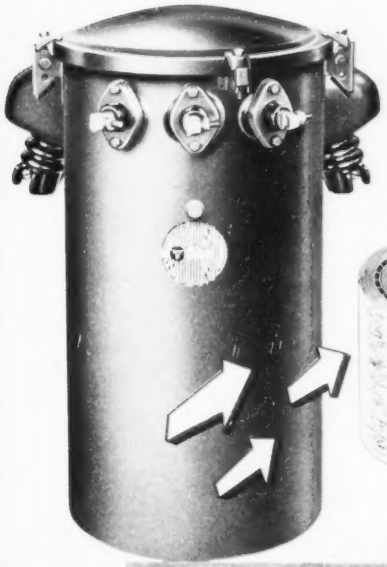
★ **Exposition of Chemical Industries**
Grand Central Palace, New York, N. Y., November 28-December 3.

★ Additions this week

Cut failures... cut costs... with these features

of

L-M ROUND-WOUND TRANSFORMERS



High Short-Time Overload Capacity

Stepped core cross section provides oil passages between core and coil; these and the long round coils expose more surface to the oil, assuring better cooling.

High Impulse Strength

Coils are wound *round* right onto the core—no need to mallet coils into shape. Round coils can be wound tighter with better insulation distribution and improved impregnation, assuring higher average impulse strength.

Balanced Performance

L-M Round-Wound design provides balanced performance characteristics with their many advantages including better regulation, and high short circuit strength.

Quality Craftsmanship

Sealed tank construction, an L-M "first", is one of many quality construction features that assure long life for L-M Round-Wound transformers.

L-M Round-Wound transformers have a record of remarkably few failures—from all causes including lightning. This fact, together with their low operating cost, makes Round-Wounds a most desirable investment for both new construction and replacement of old, high-cost equipment.

Want more information? Ask the L-M Field Engineer, or write Line Material Co., Transformer Division, Zanesville, Ohio.

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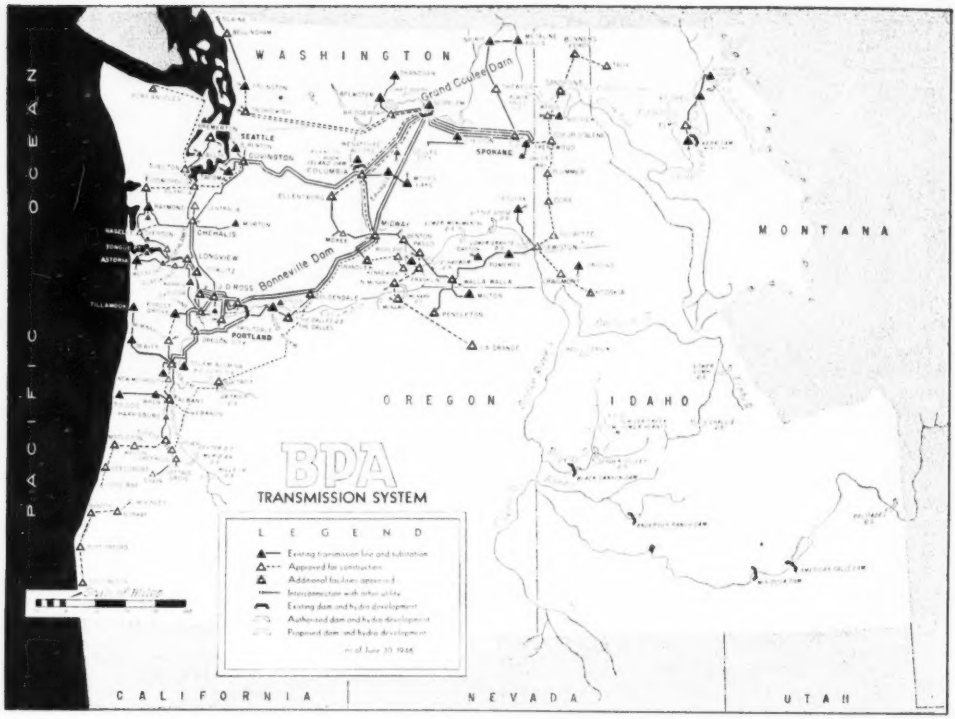


BPA COMPLETES A YEAR

Power Sales and Revenues Reach Record Heights

BONNEVILLE POWER Administration, leading producer of electric energy in the Pacific Northwest, has issued its report for fiscal 1949. It reveals that the year ended June 30 was a record one.

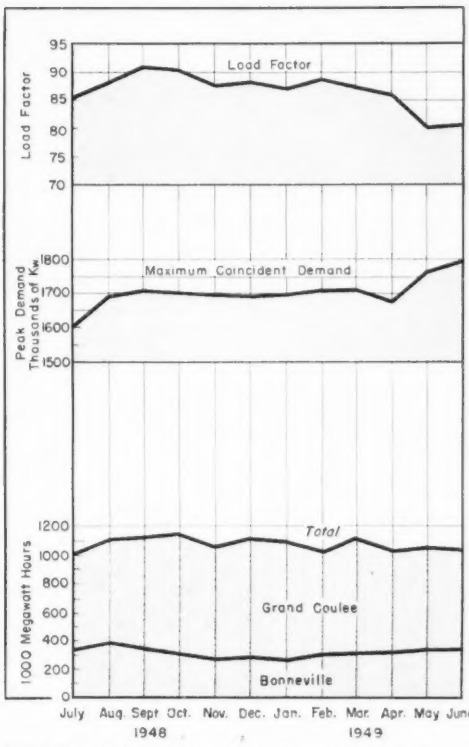
Generation at BPA's Bonneville and Grand Coulee hydroelectric plants topped 12 billion kwhr despite short periods of floods and much longer periods of severe water shortages. The actual production by the two plants was 12,925,787,700 kwhr, an 18.7% increase over 1948 production.

Maximum system demand was 1,797,000 kw on June 27, just three days before the end of the year but after system nameplate rating had been raised to 1,593,000 kw by the operation of the first 108,000-kw unit in the right powerhouse at Grand Coulee. This peak already has been topped this year following the installation of a second 108,000-kw unit in the same plant. On July 13, demand reached 1,833,000 kw. This indicated that the present fiscal year will be another record one for BPA.

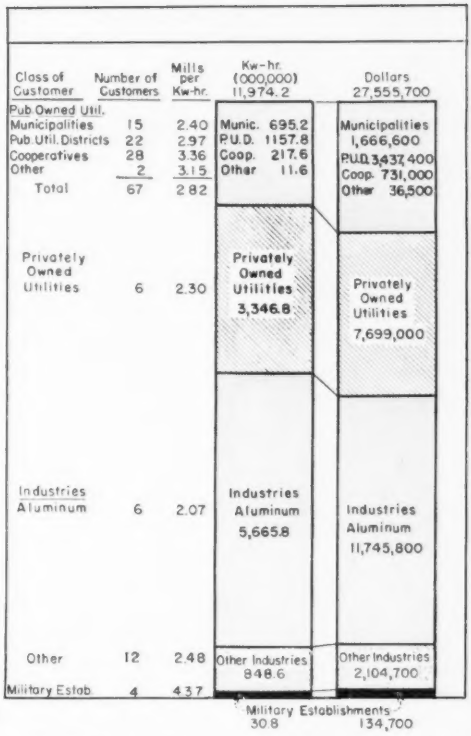
"All generating and transmission facilities in the area," the report reads, "were operating under overload conditions during the winter months of critical power supply. Maximum possible use was made of generating facilities at Bonneville and Grand Coulee to serve the region. During the fiscal year, generation at these projects represented 64% of total energy produced in Oregon, Washington, and northern Idaho."

At the year's end BPA was serving 95 customers at 200 points of delivery. This was 5.6% more than at the end of 1948. Most, 67, of the customers were publicly owned utilities, but they bought only 2,082,200,000 kwhr of energy. The important customers from the standpoint of purchases were six aluminum companies. They took 5,665,800,000 kwhr, approximately 44% of all BPA output. The six privately owned utilities were also good customers. They bought 3,346,800,000 kwhr.

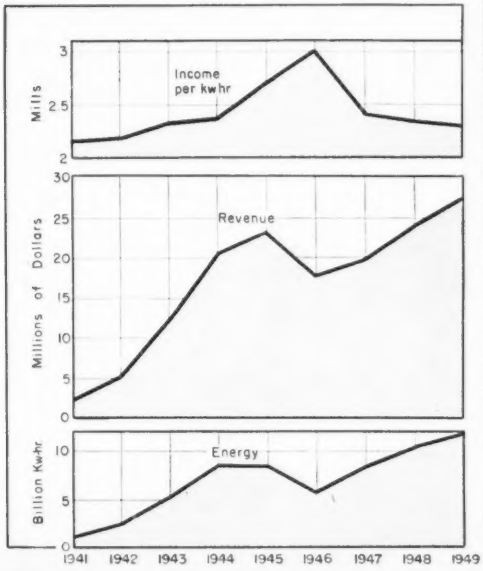
As with all power producers, the more energy BPA sells, the less it gets per kilowatt hour. For fiscal 1949, it received an average of 2.30 mills per kwhr, 1.7% less than the 2.34 mills received in 1948. Military establishments paid the right rate of 4.37 mills per kwhr. The aluminum companies were low at 2.07 mills.



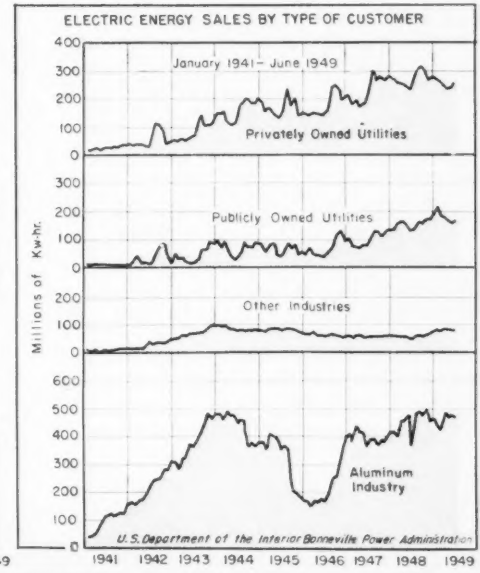
OUTPUT was fairly steady during year but demand arose at end



ALUMINUM industry is important to Northwest and also to BPA



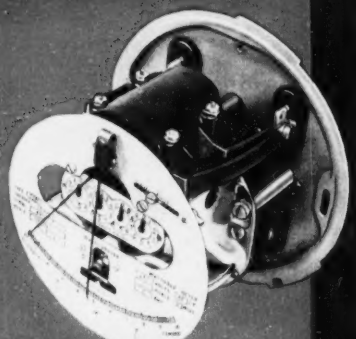
BPA revenues rose but income per kilowatt hour decreased



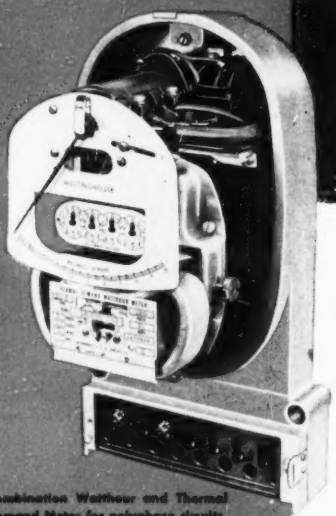
PRIVATELY owned utilities bought much energy, would buy more

Demand metering for small KW loads now economically practical for

SINGLE OR POLYPHASE CIRCUITS



Combination Watthour and Thermal Demand Meter for single-phase circuits.



Combination Watthour and Thermal Demand Meter for polyphase circuits.

Economical demand metering now can be applied to both single *and* polyphase circuits . . . even where the load is small! Westinghouse combines Thermal Demand Meters and Watthour Meters into a *single* unit. Only one mounting is required. Installation is greatly simplified.

These *two-in-one* meters answer your need for Demand Meters with low maintenance characteristics . . . to *economically* meet the continued extension of demand rates to smaller loads. Standardization and simplified design make possible a low first cost. Many parts are the same as standard Watthour Meters. Stocking is simplified.

If your problem is *economical* demand metering for kw *or* kva loads . . . single or polyphase circuits . . . investigate Westinghouse Meters. They provide the information accurately *and* economically. Write for C.S. 42-337 and C.S. 42-338. Westinghouse Electric Corp., P.O. Box 868, Pittsburgh 30, Penna.

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IF IT'S
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PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Watthour and Demand Meters for Any Job

Output Moves Downward; Margin Over '48 Narrows

The margin between output in 1949 and that in 1948 reached the narrowest point recorded since August 1946 during the week ended Aug 27, when the percent change dropped from a 3.5% increase to a 0.8% increase.

According to figures released by the Edison Electric Institute, the amount of electrical energy distributed totaled 5,523,316,000 kwhr, comparing with 5,477,741,000 kwhr for the corresponding week of 1948. During the week ended Aug 20 the output totaled 5,578,800,000 kwhr.

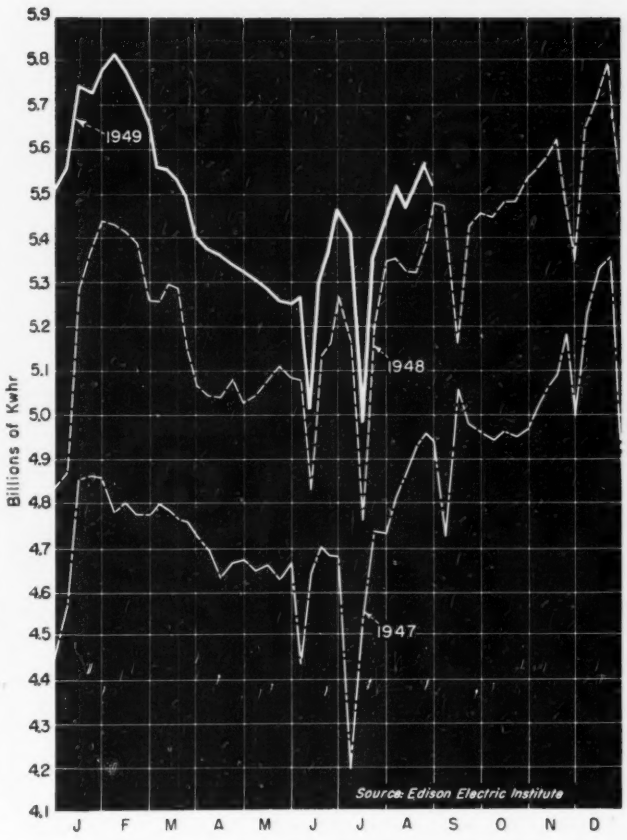
The West Central group entered the minus column during the week, reporting a decrease of 0.4%. The largest individual increase was shown by the Rocky Mountain States, 16.2%.

Weekly Output, Millions Kwhr

1949		1948		1947	
Aug 27	5,523	Aug 28	5,478	Aug 30	4,940
Aug 20	5,579	Aug 21	5,391	Aug 23	4,953
Aug 13	5,530	Aug 14	5,318	Aug 16	4,923
Aug 6	5,466	Aug 7	5,319	Aug 9	4,874
July 30	5,518	July 31	5,352	Aug 2	4,806
July 23	5,462	July 24	5,347	July 26	4,730
July 16	5,342	July 17	5,197	July 19	4,732
July 9	4,982	July 10	4,765	July 12	4,531
July 2	5,410	July 3	5,166	July 5	4,190
June 25	5,466	June 26	5,257	June 28	4,675
June 18	5,373	June 19	5,159	June 21	4,676
June 11	5,300	June 12	5,132	June 14	4,702
June 4	5,018	June 5	4,845	June 7	4,635

Percent Change from Previous Year

	Aug 27	Aug 20	Aug 13
New England	+ 1.8	+ 2.4	+ 5.3
Mid-Atlantic	— 4.5	— 1.9	+ 1.4
Central Industrial	— 4.6	— 1.1	0.1
West Central	— 0.4	+ 6.2	+ 6.9
Southeast	+ 3.6	+ 5.9	+ 5.8
South Central	+ 2.5	+11.3	+ 3.7
Rocky Mountain	+16.2	+14.7	+13.3
Pacific Coast	+ 9.2	+ 8.2	+ 8.1
Total United States	+ 0.8	+ 3.5	+ 4.0



Lobbying Probe to Hit Army Engineers, Utilities

The Army Engineers will be the primary "target" of the forthcoming Congressional investigation of lobbying, according to Administration leaders in the House. And the electric power industry probably will be a close second for this dubious honor.

These revelations came this week (Aug 29) from Rep Adolph J. Sabath, Illinois Democrat. Representative Sabath is chairman of the House Rules Committee, an ardent supporter of the Truman "Fair Deal" program, and a sponsor of the lobby probe recently voted by the House.

The House investigation still is tentative, however. Speaker Rayburn has delayed naming the investigating committee pending Senate action on a move to conduct a joint Senate-House probe. If the latter fails, the House will start its own lobby study when it returns from the present recess on Sept 21, Representative Sabath said.

The House approved a probe of lobbying by both private organizations and by government agencies. This meant the Army Engineers would be the "number one target" of the probers, Representative Sabath asserted.

The Engineers, he added, influence Congressional votes through their ability to initiate flood control and navigation projects in many Congressional districts. He also charged that the Engineers served as "indirect representatives of the power interests."

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Installation Date Delayed

Indianapolis Power & Light Co has announced it will install the third generator in its new White River power plant in 1952 instead of 1951. The first unit went into operation in February, ahead of schedule, and the second is planned for a May, 1950, start.

Utility Secures Return of Properties from Co-ops

Ohio-Midland Light & Power Co has notified the Ohio Public Utilities Commission that it has complied with the PUC order of Feb 2 by regaining control of properties which had been sold to two cooperatives.

From the Inter-County Rural Electric Cooperative, Inc, Ohio-Midland has bought back its Hillsboro Division, which serves parts of Pickaway, Ross, and Hocking Counties. From the Union Rural Electric Cooperative, Inc, the utility has regained control of its Hilliard Division, which serves Canal, Winchester, Lithopolis, Lockbourne, Groveport, and Hilliard.

It was this group of communities which objected to cooperative ownership of the utility property on the grounds that such owner-ship gave them no protection against any future rate increases.

IN THE INDUSTRY

FISCHER BLACK

THE ELECTRIC CO-OPS are being fed such a flood of propaganda that it seems essential for someone to check the facts. One particular phase being investigated by this writer concerns claims that some utilities are failing to give adequate capacity or service to the co-ops.

Certainly this is nothing new to the propaganda machine, but the electric co-ops and the public deserve to have the facts. When all the data are in and published, there should be little doubt that the utilities are giving ample power supply, good service, and low rates.

It is of interest to note some of the claims and the answers by the utility companies concerned. Since the full story is too long to cover here, it is possible only to review some of the material now being assembled.

Claim—Company has not been able to supply power to them (co-ops) in amounts sufficient to meet their needs.

Company Answer—All REA's in this territory are being supplied with all of the power they have requested.

Claim—Co-ops have been forced to make plans to obtain expensive voltage-regulation equipment.

Company Answer—We have advised all of the cooperatives that they should install regulators to insure satisfactory voltage to their customers.

Claim—The threat of such curtailment (of power supply) is serious because the company is short of generating facilities.

Company Answer—The company has been able to meet growing requirements of these cooperatives, including some instances where other sources proved inadequate.

Claim—Company stated that, because of increased demands on its system, it was not in a position to sell additional power to REA-financed rural electric systems either now or in the future.

Company Answer—Co-op notified the company of its wish to cancel the contract in 1942. Co-op asked for extension several times because of inability to get additional capacity but also sent in a second cancellation notice effective in 1946. After the co-op had changed its mind another time and asked for a contract, the company replied, "The rapidly increasing demands of our system will not permit us to offer you wholesale power supply as inquired about in your September letter."

These are obviously extracts from stories requiring much greater amplification. They are only samples of many such conflicting statements which urgently need clarification.

Another field of dispute is that of electric rates. But few cases support claims that rates are high compared with the cost if the co-ops supplied their own power. The trend toward lower rates for the co-ops is indicated by recent contracts, a Georgia Power Co one being a specific instance. One power company has reported that it is "now selling them (co-ops) power at a rate that will not give us a fair rate of return on our investment." No doubt this is applicable in other cases where utilities are cooperating to the maximum degree.

Whatever lack of understanding still exists between the power companies and the co-ops should be cleared up soon. Otherwise we will find duplication of facilities far beyond anything so far conceived.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Fuel clauses are included in the rates of 80% of the utilities; 500 industrial schedules, 150 commercial and 29 residential have them, the latter usually applied only above a minimum exempting the small users.

Generating capacity scheduled for addition totals 6,279,600 for 1949, 6,451,450 for 1950 and 4,591,225 for 1951. Industrial are scheduled for only 653,100 for the 3 years.

Large power transformers (over 500 kva) scheduled for 1949 total 29,131,000 kva, for 1950 total 20,637,000 kva and 1951 total 1,010,000 kva.

Prices for electrical manufacturing goods rose only 38% despite wage increases of 90% and material cost increases of 76%. Contrast this with automobile price increases of 89% with wages up 82% and materials 90%.

Standardization benefits are sacrificed more to pride in individual preferences than any other single obstacle.

Corrosion before long will be the dominant reason for removing vault transformers for overhaul.

Faulty draft gauges can give false index of pulverizer operation.

Steam reheat is theoretically obtainable (without returning steam to boiler) by bleeding steam through nozzles in hollow diaphragms into the "moisture" section.

Totally enclosed motors are wise purchases for spares because they can operate where others might not be appropriate because of dirty air, splashing or undue heat.

NEWS ABOUT PEOPLE

Gussett Elected President of Iowa Power & Light

N. Bernard Gussett, acting general manager of the San Antonio (Tex.) Public Service Board, has been elected

N. BERNARD GUSSETT

president of the Iowa Power & Light Co, Des Moines, to succeed the late C. A. Leland.

Mr Gussett, who has been acting general manager of the San Antonio properties since the death of E. H. Kifer, joined the San Antonio Public Service Co in 1925. He was made assistant engineer and held various administrative positions until 1935, when he was made manager of all electric operations except in the metropolitan area. He continued in that position until joining the army in 1940. When he was released from active duty in July, 1944, he returned to the San Antonio properties as executive assistant, subsequently becoming operating head.

Mr Gussett is particularly known in the industry for his contributions to rural electrification. He is a fellow of the American Institute of Electrical Engineers and a member of the Society of Professional Engineers.

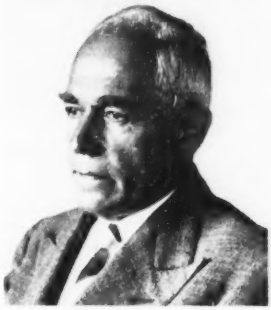
•

W. E. Bann, vice-president and Texarkana (Ark.) division manager of the Southwestern Gas & Electric Co, Shreveport, La., has retired from active duty. Mr Bann, who has been associated with Southwestern and its predecessor companies since 1904, will continue his interest in the company since he remains as a member of the board of directors and as vice-president. He will be succeeded as Texarkana division manager by **J. D. McCarty,** formerly assistant division manager. Mr McCarty became identified with the East Texas Public Service Co in Longview, a predecessor company of Southwestern, in 1925.

•

Dr Max Schiesser Elected to Presidency of IEC

Dr Max Schiesser, head of the Brown Boveri Co at Baden, Switzerland, and president of the Swiss Electrotechnical Institution since 1939, has been elected



MAX SCHIESSER

president of the International Electrotechnical Commission. Dr Schiesser succeeds E. Uytborck of Belgium.

Dr Schiesser has been with Brown Boveri since 1901, except for a short period during which he worked in France and in the United States. He is credited with important contributions to the development of rotary converters, mercury arc rectifiers, and switchgear.

•

R. D. Hart, who recently returned from Korea, has resumed active association with the Central Illinois Light Co in the Peoria electric distribution department after an absence of almost a year. Mr Hart was one of 12 electrical engineers loaned by the United States to the Korean government for the purpose of building up electrical systems and power plants.

Whichard Moves to N. Y.; Blackmon Leaves EW

The month of September brought with it two changes on the staff of ELECTRICAL WORLD.

William B. Whichard, Jr., Washington correspondent since 1946, has joined the New York staff as an associate edi-

WILLIAM B. WHICHARD, JR

tor, and Hendley N. Blackmon, managing editor since 1948, has returned to the Westinghouse Electric Corp, with which he was associated for 20 years

HENDLEY N. BLACKMON

before joining the McGraw-Hill Publishing Co in 1945.

Mr Whichard engaged in newspaper work while in college and then became identified with the *Washington Times-Herald* as a reporter. Before entering military service in 1942, he was editor of the now defunct News Syndicate in

Washington, D. C. Following discharge from the service in 1945, he joined the staff of *Public Utilities Fortnightly* as associate editor. He severed this connection to join the Washington Bureau of McGraw-Hill, where his principal duties have been as correspondent for ELECTRICAL WORLD.

Mr Blackmon will be located in Pittsburgh as assistant manager, engineering association activities. He has a broad background of experience in the electrical industry as well as in the technical writing field. During the last ten years of his association with Westinghouse, he organized and directed the company's technical publicity activities. His first connection with McGraw-Hill was as electrical editor of *Product Engineering* and his promotion to managing editor followed. His next assignment was to the managing editorship of ELECTRICAL WORLD.

•

Dwight E. Hahn has been appointed assistant to the executive vice-president of the Potomac Electric Power Co, Washington, D. C. Mr Hahn joined Potomac Electric Power in 1928 as an illuminating engineer and while serving in that capacity was given several special assignments in the commercial department. In 1934 he was placed in charge of customer negotiations in connection with the company's ac-dc changeover program and the following year was made senior illuminating engineer in charge of the lighting service bureau. It was in 1935 that Mr Hahn was appointed assistant to the commercial manager, the position he held until his recent promotion. During the time he was assistant to the commercial manager, Mr Hahn also served as chairman of a special committee appointed to review and revise the company's rules and regulations for electric service and also was a member of the company's foremanship administrative committee for a period of four years.

Reuben B. Hicks has been made manager of the Prince William Electric Cooperative, Manassas, Va., to succeed John Y. Roseberry, resigned. Mr Hicks has been serving as acting manager. Mr Hicks formerly served as assistant county farm agent in Dinwiddie County and as agricultural engineer for the Richmond and Petersburg divisions of the Virginia Electric & Power Co.

Dr Eugen Sovegjarto has joined the research staff of the Eutectic Welding Alloys Corp, New York. Dr Sovegjarto, a welding alloys research expert, was formerly associated with the leading metallurgical companies in Germany.

Hess Heads Production for Leeds & Northrup

Joseph C. Hess, Jr, has been elected vice-president in charge of production for Leeds & Northrup Co. Hess, former assistant factory manager of the Germantown plant, succeeds W. R. Coley, who recently retired after 45 years with the company.

Hess joined Leeds & Northrup in

JOSEPH C. HESS, JR.

1916 as a learner in the laboratory. He is a member of the American Institute of Electrical Engineers and American Society for Metals.

OBITUARY

Nelson A. Hooper, superintendent of substations for Ohio Edison Co, Youngstown, died of a heart ailment on Aug 18. He was in charge of substations for Mahoning County and the surrounding area. He had been identified with Westinghouse in Pittsburgh before going to Youngstown in 1924.

George B. Heath, city electrical engineer for St. Louis, Mo., some years ago and who in that capacity supervised the installation of much of the local electrical street lighting system about 1929, died Aug 17 in that city at the age of 69. In recent years he had worked as an electrical contractor on the atomic bomb project at Hanford, Wash.

Edward M. Miller, who retired in 1936 as superintendent of the new business and merchandising department of the Wisconsin Public Service Corp, Milwaukee, died on July 3. He was 77 years old.

Jesse O. Tobey, 67, consulting engineer for the Sacramento (Calif) Municipal Utility District, died June 27 in Sacramento. Mr Tobey entered the field of electric power construction in 1901. He was a lines instructor for the Northern California Power Co, and later became electric foreman and assistant superintendent for the San Jose power division of Pacific Gas & Electric Co. He went to Sacramento in 1910 as power division superintendent, and he supervised the city's transportation system from 1918 to 1943. In 1946, Mr Tobey retired from PG&E as electrical superintendent of the Sacramento division to become a consulting engineer. He was a member of the Pacific Coast Electrical Association.

•

Wilbur B. Driver

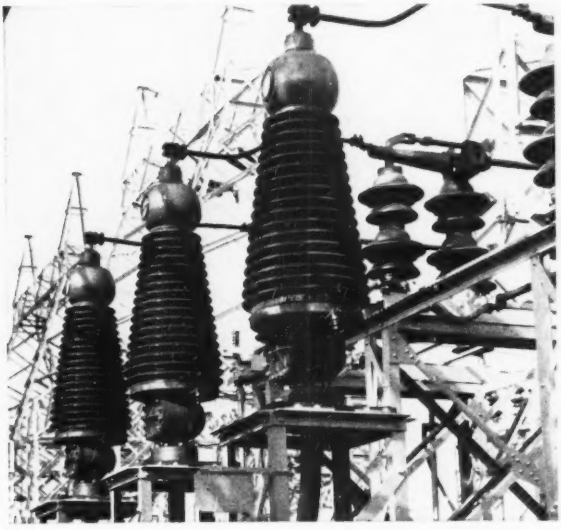
Wilbur B. Driver, chairman of the Wilbur B. Driver Co, Newark, N. J., and founder of that company and of the Driver-Harris Co of Harrison, N. J., died on Aug 23 in East Orange after an illness of three weeks. He was 75 years old.

A pioneer in the American alloy wire industry, Mr Driver became interested in 1907 in the production of nickel-alloy, then newly developed. He merged with other interests to form the Driver-Harris organization, of which he was president for many years. Subsequently, he took over the Gilby Wire Co, which was renamed the Wilbur B. Driver Co, with its plant at Newark, N. J. He retired shortly before the recent war but returned to direct production of electrically heated flying suits used by the military.

•

Edward E. Noble, assistant general manager of the Cleveland Electric Illuminating Co for 20 years until his retirement in 1940, died on Aug 20 at his home in Lake Worth, Fla. He joined CEI in 1893 as supervisor of underground department crews laying "Edison tubes" in downtown Cleveland and progressed through the operating departments, being appointed assistant general manager in 1920. In that capacity he had charge of underground and overhead lines, property security, transportation, and transformer repair. Mr Noble contributed to the development of high construction and engineering standards. He was also active in employee welfare activities.

John L. Daly, a member of the sales department of Combustion Engineering-Superheater, Inc, New York, died in New Brunswick, N. J., on Aug 16. Mr Daly was connected with the Heine Boiler Co, when that organization was acquired by Combustion Engineering-Superheater in 1927 and he continued in sales work for the latter company.



OHIO BRASS COMPANY

BARBERTON DIVISION - BARBERTON, OHIO, U. S. A.

TO: THE OKONITE COMPANY

FOR: PHILADELPHIA ELECTRIC CO.

Add to the complex requirements of a high voltage bushing, the extra demands imposed by retaining oil at a constant pressure of 200 pounds, and you will appreciate the high degree of specialization involved in O-B Oilostatic Potheads.

Shown here are two installations of these Potheads at opposite ends of a 9.25-mile circuit connecting the Southwark Generating Plant and Westmoreland Substation of Philadelphia Electric Company. Some of the characteristics of this installation are briefly described by the makers of Oilostatic cable, The Okonite Company.... "Voltage, 66 kv, 880 amperes, 105,000 kva rating. Load factor, 90 per cent. Three conductors in single 6⅝-inch pipe. Conductor size, 1,500,000 cir mils. Copper temperature, 75 degrees C. Insulation thickness, 0.35-in. And, equipped with..."

POTHEADS

AN ESSENTIAL PART OF OILOSTATIC CABLE

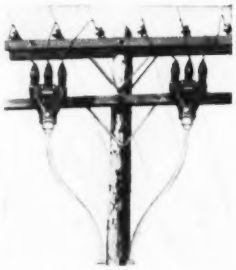
Ohio Brass

MANSFIELD, OHIO

Secure PRIMARY CABLE SYSTEM F-L-E-X-I-B-I-L-I-T-Y
with G & W sectionalizing devices

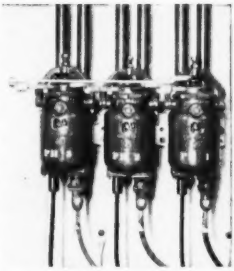
DISCONNECTING POTHEADS

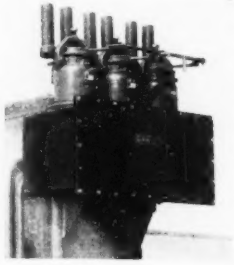
In addition to protecting the cable ends, G&W Type "ES" potheads provide a convenient and economical means for disconnecting cables from overhead wires. They are non-load break and ordinarily limited to operating voltages up to 7500. They are applied to cable systems, where installation conditions permit, as an inexpensive means for sectionalizing cables; for disconnecting branches from through runs and for isolating transformers. Single phase branch loads can be balanced on a three phase main by shifting the interchangeable plug caps. The gang operating feature has increased their usefulness as a three phase cable end disconnect.



OIL FUSE CUTOUTS

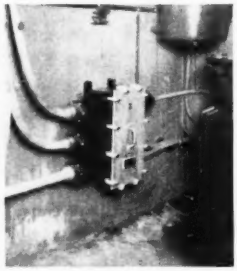
G&W Type "FC" oil fuse cutouts are used for fusing and switching of primary circuits in subway, vault and overhead installations. The gang operating mechanism provides for load break three phase sectionalizing. The fuse gives overload and short circuit protection. Within the limits of their short circuit interrupting capacity, oil fuse cutouts often can be applied to locations which do not require the more expensive oil circuit breakers. The heavy all steel housing confines the fuse arc, providing safety from fire. The sealed construction is submersion proof. Cutouts are used as separate units for single conductor cables or mounted on welded steel boxes which enclose connections to multiple conductor cables.

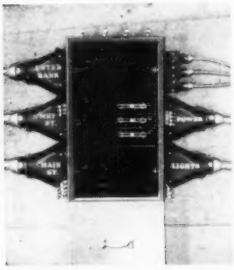




CABLE BOXES

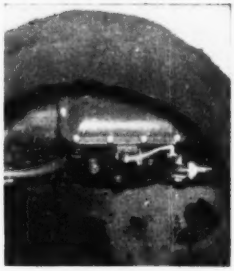
Disconnecting link subway cable boxes were an early development for sectionalizing underground cables in the same way that pole top disconnects are used on overhead systems. There are two general classes of high voltage link boxes—AIR FILLED for voltages up to 7500 and OIL FILLED for higher voltages. Time is required to operate the links in subway cable boxes because the circuits must be de-energized, the gasketed cover removed, the links individually removed or inserted and the cover replaced. Boxes should be tested for air and water tightness after each time they have been opened. The use of cable boxes may be justified by economic considerations when the frequency and the time required for operation of links is not an important factor.

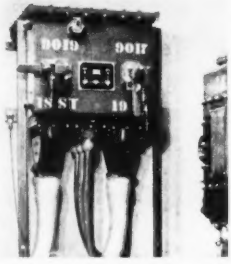




OIL SWITCHES

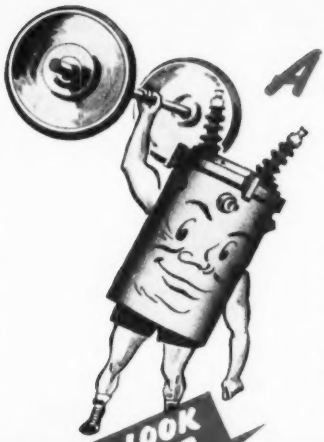
For safe, speedy sectionalization of cable circuits install load break subway oil switches. In case of trouble, sections of cable can be quickly isolated and circuits can be rerouted to restore service in the area affected. Load break disconnection is accomplished by manual (or automatic) operation of an external lever—without opening the tank or breaking the seal. Separate unit single throw oil switches are preferred by some operators. On the other hand, G&W Type "RA" multiple circuit oil switches combining standardized unit parts are solving many sectionalizing problems. Their simple sturdy design requires minimum maintenance. There is a definite trend toward their use because they save space and provide system flexibility in a simple and economical manner.





Send us cable data for our quotation on suitable devices to meet your sectionalizing requirements

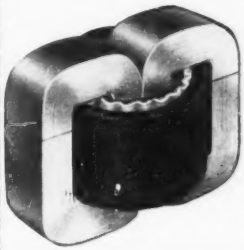
G & W ELECTRIC SPECIALTY CO., 7780 DANTE AVENUE, CHICAGO 19, ILLINOIS, U. S. A.



A smaller package for a BIGGER Job!

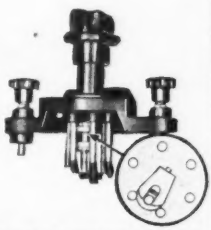
They say good things come in small packages. In the case of Moloney HiperCore Transformers, it's true! Though much smaller in size and lighter in weight, HiperCore Transformers have greater short-time overload capacity, better voltage regulation and are much more dependable for all-around sustained performance. Averaging ⅓ smaller in size and weight, HiperCore Transformers have improved characteristics, which will be reflected in your maintenance and operating records.

HiperCore Transformer cores are wound from oriented, silicon steel. Each loop is annealed in its final form and individual laminations do not have to be disturbed for assembly, assuring top performance of unstressed core steel. Annealed core loop is impregnated with high temperature plastic binder which makes possible cutting into two U-shaped pieces. Cutting burrs are neatly removed by etching.

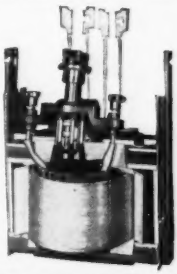


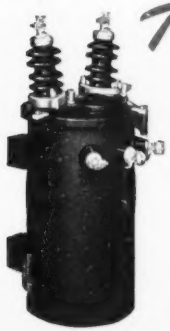
The core-and-coil unit is a center-leg type of construction, having a single coil and two core loops. Each core loop is cut into two U-shaped pieces after impregnation, and then cemented back together when the coil is in place. Steel bands around each core loop hold the two U-shaped pieces tightly together with a force of from one to three tons.

The Moloney HiperCore Tap Changer is unmatched in ruggedness and design. The plainly numbered operating handle is located *above* the hot oil level. Double-wedged contacts snap into place with a wiping action. Sturdy beryllium copper springs provide high pressure contact.



The complete core-and-coil unit for a HiperCore Transformer is the last word in compact design and superior performance. Simplicity of design plus liberal use of materials and adequate cooling ducts combine to make HiperCore Transformers cooler operating and better performing, resulting in longer life under normal operating conditions.





Plus FEATURES

- ✓ Lower Hottest-spot-over-oil temperature
- ✓ Longer Operating Life
- ✓ High Factor-of-Safety in Design
- ✓ Lighter Weight
- ✓ Smaller Size
- ✓ Greater Short-Time Overload Capacity
- ✓ Better Voltage Regulation
- ✓ Superior Tap Changer

Send for Bulletin H-303 describing HiperCore Transformers.

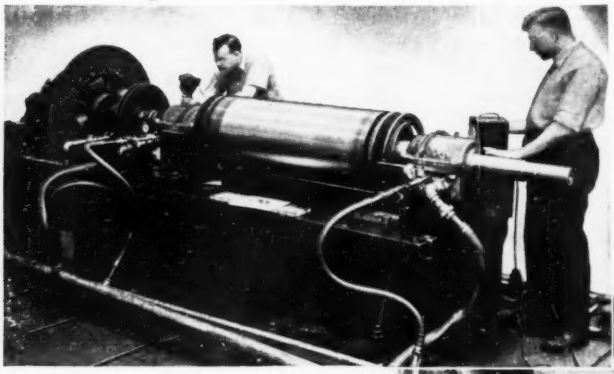
MOLONEY

ELECTRIC COMPANY

Sales Offices in all Principal Cities

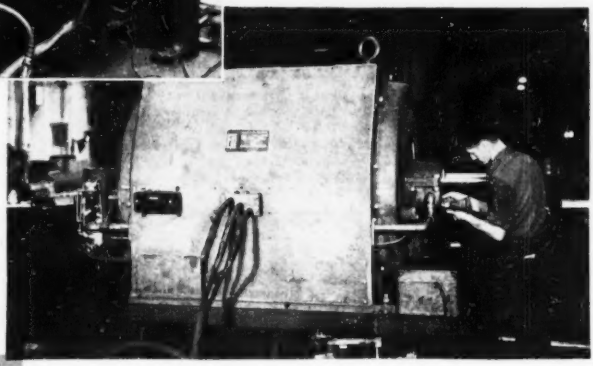
FACTORIES AT ST. LOUIS, MO. AND TORONTO, ONTARIO, CANADA

Careful balancing insures smooth running for these two-pole motors

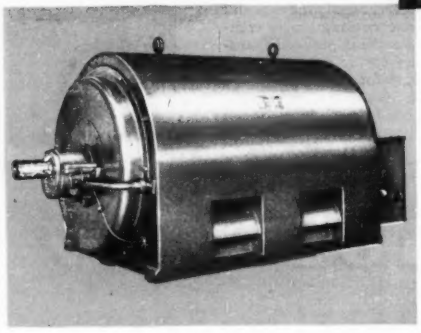


These photos graphically illustrate why Elliott two-pole motors are especially smooth-running at all speeds.

The picture at the left shows the first phase of balancing. Here the rotor, operating in its own bearings, is driven at various speeds up to 3600 rpm. Any tendency toward unbalance at critical and full speeds is here corrected to achieve the fine degree of balance needed in a two-pole motor.



This photo shows the second and final phase of balancing, with rotor assembled in the completed motor and operating at full speed. All Elliott two-pole motors must have a balance within one mil or less, before being released from test.



Elliott two-pole induction motors are built in ratings from 250 to 4000 hp; drip-proof, splash-proof, enclosed separately (forced) ventilated, enclosed self (pipe or base) ventilated, enclosed self-ventilated with built-in coolers. They have unusual features for exceptionally easy maintenance, such as split-sleeve bearings, and light but rigid one-piece steel bearing brackets, which facilitate easy removal of rotor without moving motor from base.

Fully described in Bulletin PB7000-1 —on request, write to

ELLIOTT COMPANY
DEPT. EN, RIDGWAY DIVISION. RIDGWAY, PA.
Plants in JEANNETTE, PA. • RIDGWAY, PA.
SPRINGFIELD, O. • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

L-795

Elliott FABRI-STEEL Motors

MANUFACTURERS and MARKETS

EXECUTIVES of Royal Electric Mfg Co, Chicago, inspect their new mobile display wagon before starting out on their annual tour of utilities and industrial plants. Last year they visited many of the central engineering offices of the utility companies; this year they will contact more of the district offices in smaller cities. The display unit features three group-operated switches (rolled out above for demonstration), and power connectors. Attached to the side of the station wagon is a rack of photo enlargements of the company's products and applications. Shown above (l to r) are P. L. Warren, president; H. Burmeister, development engineer, and J. M. Trotter, chief engineer

Public Hearings Scheduled on Alcan Hydro Project

Objectors to plans of the Aluminum Co of Canada for a $350-$500 million hydro-electric and refinery project in British Columbia will have an opportunity to present their cases at public meetings scheduled for September.

This was announced by Maj R. C. Farrow, B. C. comptroller of water rights, after the Aluminum Co filed formal applications for water rights on the Nechako and Chilco river systems, the two possible sources of water power for the proposed development.

Probable objectors to the Chilco Hydro development, now being given secondary consideration only, are fisheries interests, who claim a hydro scheme in the area would affect Fraser River salmon runs.

Affected in the Tweed-muir Park scheme are 50 to 60 farmers in the Nechako area, whose farms would be flooded by a Nechako dam impounding the waters in the Ootsa and Eutsak lake country.

Under terms of the water rights applications filed by the company, objectors have until Sept 9 to give notice of their intentions.

"Because of the enormous nature of the scheme, we propose to hold the hearings so that any persons affected will have full opportunity to state their case," Major Farrow said.

The Aluminum Co has filed for water rights in both areas because it has not yet made a definite decision on which would be the most satisfactory from an engineering standpoint. Engineering studies for the present are being concentrated on the Tweedsmuir Park area, with drilling for dam foundations being carried out at the present time on the Nechako River.

Hearings will be held in Victoria and the Nechako country.

Aluminum Co officials have flown to Ootsa Lake to discuss with residents there the effect of raising the lake system's level by damming the Nechako and the general question of compensation and arbitration arising out of such flooding.

Manufacturers Make New Sales Assignments

Electrical manufacturing companies have recently made the following appointments to their sales staffs:

P. R. Mallory & Co, Inc, Indianapolis, Ind., has opened a new branch office at 1338 South Lorena St, Los Angeles, Calif., under the direction of J. E. Templeton. The new office will serve customers in southern California and Arizona.

Camfield Manufacturing Co has appointed Earl Goetze of Kansas City, Mo., to represent it in Missouri, Kansas, Nebraska, and Iowa.

Sprague Electric Co, North Adams, Mass., has named Charles E. Anderson of Cleveland, Ohio, as district sales representative to represent it in Ohio, West Virginia, western Pennsylvania and northern Kentucky. His offices are at 4500 Euclid Ave.

McGraw Electric Co, Toastmaster Products Division, has appointed Rowland H. Caugherty sales representative for the southeastern territory. He will make his headquarters in Atlanta, Ga., and cover the states of Georgia, Florida, and parts of Alabama and Tennessee. Stephen W. Rich has been appointed sales representative in the Cincinnati territory. Mr Rich will cover parts of Ohio, Illinois, Kentucky, Indiana, and West Virginia and will make his headquarters in Cincinnati.

MANUFACTURING BRIEFS

First instance of ECA's paying for patent rights was announced recently when a $400,000 procurement authorization was issued to Ercole Morelli & C, S.p.a., Milan, Italy, to cover costs of technical services and patent rights procured from Westinghouse Electric Corp. Morelli is one of the few European firms producing heavy generating equipment.

Social benefits would be broadened by "making America's great productive system even stronger, rather than through more government control," Philip D. Reed, chairman of the board of the General Electric Co, told members of the company's 25-Quarter Century Club. "In my judgment," said Mr Reed, "the greatest contribution to the welfare of mankind is the American system

of production, the vital, competitive, incentive system designed and proved to produce more goods more efficiently and to distribute them more widely than any other system." "If we maintain and improve it," he continued, "there will be no difficulty about increasing the amount and duration of unemployment insurance and other desirable measures to guard against life's hazards and old age."

Proposed sale of the major part of the physical assets of the Solar Manufacturing Co, North Bergen, N. J., to the Sprague Electric Co, North Adams, Mass., for $525,000 has been stopped in the Federal Circuit Court in Philadelphia. Sale was to have been made Aug 31 by Federal Court reorganization trustees of Solar. The Circuit Court ruling upheld objections made by the United Electrical, Radio and Machine Workers Union (CIO), bargaining unit for 500 employees of the company, who would lose their jobs if the company is liquidated. A group of debenture holders also filed a protest. Maintaining that the New Jersey District Court which authorized the sale had not complied with terms of the Bankruptcy Act, Judge Herbert F. Goodrich returned the matter to District Judge Guy L. Fake in New Jersey for further action.

Philippine Electrical Manufacturing Co has announced it will open a factory in December with an initial capacity for producing 625,000 fluorescent and 2,500,000 incandescent bulbs annually. It will be the first factory of its kind in the Philippines.

Kellems Co has moved its offices and plant to 15 Williams St, Stonington, Conn. The plant was formerly located in Westport.

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Electrical Wholesalers Announce Name Change

Effective Sept 1, by action of the Board of Governors, the name of the National Electrical Wholesalers Association has been changed to National Association of Electrical Distributors, according to an announcement by president D. M. Salsbury and managing director Charles G. Pyle.

The indispensable economic functions of the modern distributor of electrical apparatus, supplies and appliances, in the opinion of the board, are more appropriately reflected by the new association name, which will hereafter also be referred to as NAED.

NAED headquarters will remain at 500 Fifth Ave, New York 18, N. Y.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

California—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., lighting distribution transformers, distribution boards, thermostats, and pressure and temperature switches for Tracy Switchyard and Pumping Plant, Central Valley Proj., Spec. 2755, L. N. McClellan, ch. engr.

California—Bureau Reclamation, Dpt. Interior, Tracy, constructing Tracy Switchyard, Central Valley Proj., approx. 9 mi. northwest of Tracy, Alameda Co., Spec. 2786, L. N. McClelland, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

Colorado—Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, substations for Windsor, Woodrow and Wray Substations, Colorado-Big Thompson Proj., Spec. R7-70 (Region 7) transformers, lightning arresters, circuit breaker, switch, disconnecting switches, disconnecting fuses, meter for Longmont substation, Colorado-Big Thompson Proj., Spec. R7-75 (Region 7) completing Estes and Marys Lake Power Plants, Colorado-Big Thompson Proj., Spec. 2767, L. N. McClellan, ch. engr.

Florida—Clay County Electric Co-operative, Inc., Keystone Heights, imprv. exten. rural distr. lines, and service in Clay, Alachua, Marion, Columbia, Putnam and Union Counties, Owner builds, **$585,000.**

Ill., Chicago—S. & C. Electric Co., 1415 N. Ravenswood St., plans by Milton S. Carstens, 1 N. LaSalle St., Chicago, Zone 2, steel, brick, concrete plant, 6615 N. Ridge Ave., **$100,000.**

Iowa and Missouri—Northwest Electric Power Co-operative, Inc., Savannah, Mo. and c/o Ernest C. Wood, pres., Chillicothe, Mo., rural distr. lines, power generating plant, equip. auxiliaries, and appurtenances, power sub stations, etc., northwestern Missouri and southwestern Iowa, **$23,000,000.**

Iowa—Southwestern Federated Power Co-operative, Creston, 5 step-down substations in 5 counties, localities, Approx. $100,000, Stanley Eng. Co., Hershey Bldg., Muscatine, engr.

Kansas—Kaw Valley Electric Co-operative, 1513 Lane St., Topeka, 165.73 mi. rural distr. lines and 24.5 mi. conversion, Jackson, Shawnee, Douglas, Osage and Waubansee Counties, **$200,000.** Frank Horton & Co., Gunnar, Mo., engrs.

Louisiana—Beauregard Electric Co-operative, De Ridder, 555 mi. rural distr. lines and other imprvs., Proj. LA-18, Beauregard Parish, **$935,000.** Goadt & Heft, 820 Union St., New Orleans, consult. engrs.

Minnesota—East Central Electric Assoc., Braham, 449 mi. rural distr. line and sys. imprvs. Kanabec Co., **$1,000,000.**

N. Y., Schenectady—U. S. Atomic Energy Comn., c/o General Electric Co., River Rd., administration and security bldg., fire station, equip. maintenance shop, carpenter and machine shop, warehouse, completing access road, clearing, rough grading, drainage, site roads and pavement, steam and electrical distr. sys., sewage collection, sewage disposal and water distr. systems, water tank, at West Milton Inv. AE 50-SCH-1.

North Carolina—Randolph Electric Membership Co-operative, Asheboro, 76 mi. rural distr. lines, **$376,000.** REA allot.

Ohio—Hancock-Wood Electric Co-operative Inc., North Baltimore, 28 mi. rural distr. line and sys. imprvs., Wood Co., **$105,000.**

Oklahoma—Alfalfa Electric Co-operative, Cherokee, 142.35 mi. rural distr. lines, sys. imprvs., Alfalfa Co., **$165,000.** Leland Eng. Co., Box 768, Ritzville, Wash., consult. engr.

Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, hydraulic turbine governors for Whitney Dam and Reservoir, approx. 38 mi. upstream from city of Waco, Inv. No. CIVENG-41-243-50-39.

Tex., Angelton—City, Angelton, electric light and power distr. sys. **$150,000.** Garrett Engr. Co., 5008 Almeda St., Houston, consult. engr.

Low Bidders & Contracts Awarded

Arizona-California-Nevada — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Aug. 16, generator for Unit A-9, Hoover Power Plant, from Allis-Chalmers and Mfg. Co., Continental Oil Bldg., Denver, Colo., **$763,824**; transformers for unit A-9, Hoover Power Plant, Boulder Canyon Proj., Spec. 2756, from Pennsylvania Transformer Co., 808 Ridge Ave., Pittsburgh, Pa., **$124,064.**

Ill., Lamont—U. S. Atomic Comn., Argonne National Energy Comn., 1901 Constitution Ave. N. W., Wash., D. C., 1 story, concrete block, steel, frame experimental station, to Sumner S. Sollitt Co., 307 N. Michigan St., Chicago, Approx. **$123,000.**

Ia., Cedar Rapids—Iowa Electric Light & Power Co., Security Bldg., turbine bldg., to Abel Howe Co., 1026 3 Ave. S.E., **$335,000.** Howard R. Green Co., Cedar Rapids, engr.

Montana—U. S. Eng., Fort Peck, oil immersed self cooled single phase transformers and appurtenances, f.o.b. cars Wiota, Serial No. Eng-24-016-49-25, to Moloney Electric Co., 5390 Bircher St., St. Louis 20, Mo., **$92,090.**

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

D. C., Wash.—Public Bldgs. Admin., F St. between 18 and 19 Sts. N.W., plans by Gilbert S. Underwood, c/o owner, 7 story Washington Hospital Center, **$23,000,000.**

Mont., Galen—Montana State Bd. Examiners, Helena, plant by J. Van Teylingen, Great Falls, Indian Hospital, **$2,900,000.**

N. Y., New York—11 Riverside Drive Corp., c/o Sylvan Blen, archt., 565 5 Ave., 16 story apartment, on block bounded by Riverside Dr., West End Ave., W. 73 and W. 74 Sts. **$8,000,000.**

O., Warrensville (Br. Cleveland)—Cuyahoga Co. Comrs., Ontario and Lake Sts., Cleveland, plans by George S. Rider Co., Terminal Tower, Cleveland, 260 bed county tuberculosis hospital **$4,450,000.**

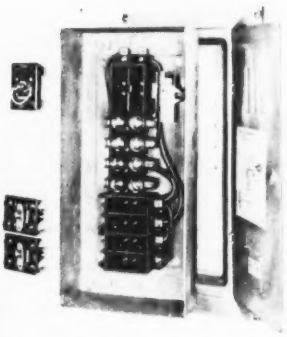
Pa., Erie—Hamot Hospital, 2 and State Sts., 10 story, brick hospital addn., modernization, 200 addnl. beds, $1,800,000, Johnson & Johnson, Commerce Bldg., archts.

Low Bidders & Contracts Awarded

Nev., Reno—Reno Securities Co., 206 N. Virginia St., 3 story, basmt., rein.-con. structural steel Riverside Hotel addn., to M. J. Brock & Sons, Inc., 2894 Rovena Ave., Los Angeles, Calif., Approx. **$1,500,000.** DeLongchamps & O'Brien, 160 Chestnut St., and Frank Green, 1515 N. Chevy Chase St., Glendale, Calif., archts.

Pa., Pittsburgh—Marlin Arms, Inc., 5621 Walnut St., 6 story, concrete block, brick, steel apartment, 5345 Centre St., to R. Behrman & L. D. Passell, 5621 Walnut St., Approx. **$2,000,000.** Phillip Friedman, 121 S. Negley St., archt.

NEW EQUIPMENT



Entrance Switch

FOR MINIMUM on-the-job wiring for residences requiring electric range and water heater, also as feeder panel in commercial and industrial buildings, a dead front triple combination service entrance switch and panel has been announced by General Switch Corp, 49 Roebling St, Brooklyn 11, N. Y.

Unit has 100-amp main lugs feeding the 60 amp pullout switch which energizes from 4 to 12 circuits for lighting. Two appliance pullouts are internally wired in parallel with main lugs and are available for either 30 or 60 amp.

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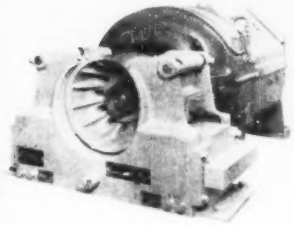

Magnetic Brake

FOR USE ON steel mill drives, cranes, hoists, bridges and conveyors, a d-c two-shoe, two-magnet brake has been announced by the Control Division, Apparatus Dept, General Electric Co, Schenectady 5, N. Y. Brake consists of iron frame, two self-aligning shoes on spherical bearings, two pivoting armatures, two symmetrical magnets and a molybdenum alloy ventilated wheel. Illustration shows magnetic brake as applied to 35-hp d-c mill motor.

Brake is applicable for either right or left-hand mounting, either on floor or, with brackets, on motors. It is available in six sizes with 60 to 2400 lb-ft (1 hr) ratings for series-wound brakes and 70 to 2700 lb-ft (continuous) ratings for shunt-wound brakes. Bulletin GEA-5194 contains more information.

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Extension Reel

FOR ELIMINATING cord wear, an extension reel has been announced by Industrial Electrical Works, 1509 Chicago St, Omaha 2, Neb. Known as the Port-O-Reel, it will accommodate 150 ft of No. 16, two-conductor cord.

Reel weighs 9 lb and has height of 17⅜ in. Reel is available with cord and hand lamp or without cord. Double constant-contact collector ring enables cord to be used while turning and will accommodate up to 30 amp. Coated contact assembly prevents short circuits due to moisture.

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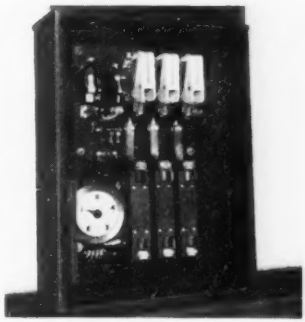
Tool Trailer

PROVIDING storage room for hot line tools and adding convenience for lineman, the Hi-Line tool trailer has been announced by James R. Kearney Corp, 4236 Clayton Ave, St. Louis 10, Mo. Body width of 67 in. increases storage capacity 40% and vertical-lift lid opening mechanism allows more tools to be carried on side racks.

Greater width accommodates large items. Top tilts in open position to permit easy access to tools stored on side. Built-in heater keeps tools dry. Available with either electric or vacuum brakes, or without brakes.



Capacitor Switch

TO ELIMINATE manual switching of power-factor capacitor banks, an automatic capacitor switch has been announced by Engineering Products, 2208 E. Washington St, Indianapolis, Ind. Self-contained switch has a synchronous timer control element with an operating cycle of one week.

This unit is available in four sizes for capacitor ratings from 20 to 180 kva, 230 v; also in six sizes for capacitors of 10 to 360 kva, 460 v. All switches are designed for 3-ph, 60-cycle capacitors with 115-v eternal source control circuits.

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Mobile Arc Welder

DESIGNED AS A mobile unit to quickly make repairs around large industries, the Weldmobile, a self-propelled arc welder, is being produced by Hobart Brothers Co, Box 389, Troy, Ohio. Two models are available—GR-301-M with a 300-amp welder for light to heavy requirements and GR-401-M with a 400-amp welder for medium to extra heavy welding.

Either unit can be furnished with 1 or 3-kw d-c power for lights and tools.

ELECTRICAL BUSINESS OUTLOOK

FIRST SIGNS of recovery in the electric power production slump have begun to appear. The leveling off at around 3% growth came during the summer. Now that optimism is growing, so is the use of power. A substantial upturn in the fall is expected, with the original estimation of growth being reached or exceeded in December.

INDUSTRIAL PRODUCTION during July may have hit the low point for some time. The Federal Reserve Index for that month is down to 162 estimated. But a rebound for the fall looks sure. And industrial production is the main determinant of industrial power sales.

Business Week's index of industrial production, which is available on a weekly basis, has been rising since mid-July. That makes it seem likely that the Federal Reserve Index for August will show a rise too. By September, the pick-up in textile production which has started should be in full swing.

Big question mark is still the steel industry. If the President's fact-finding board can't settle its wage problem, there may be a steel strike. On the other hand, if steel wages go up, there may be stronger wage demands and strikes in the coal and automobile industries. Any slowup in these heavy lines would hold back the over-all level of industrial production.

Strikes, however, are a temporary trouble. The big fact about industrial production is that it has not kept pace with consumption at a retail level—not since businessmen started cutting down their inventories last spring. Now the inventory scare is over. And production should level out closer to 180 on the FRB index than to 160.

The summer slump in industrial production hasn't been fully reflected in total electric power sales because residential sales have been growing fast. Homebuilding this summer has been close to last year's record. So new residential customers have been taking up some of the slack left by industry. But it is significant for the power industry that business has not made a major downturn. A real cyclical decline in industrial production would cause a decline in total power sales. Business turning up means power sales will show bigger increases over last year's figures.

FARM BOOM is still rolling along, providing a rich market for power installations in rural areas. In 1949, cash farm income will be $27.5 billion. And it will be almost that high again in 1950. Price support bills now ready for passage by Congress will see to that. Washington experts figure farm income in 1950 will not be more than 15% off the record set in 1948 ($30.5 billion).

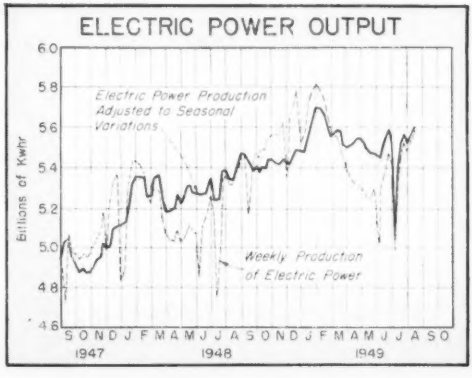
Meanwhile, prices of things farmers buy have come down. So farm purchasing power is being virtually maintained. And farmers have bought a lot of the machinery they really need for production. So purchases of electrical devices for the farm home may very well be higher than ever.

COPPER PRICES seem about to stabilize. One of the best indicators of price trends for the red metal is the price of copper scrap. Prices of heavy scrap dropped to a bottom in June, averaging about 11¢ per lb. In July and August the price rose to 14¢ per lb., as fabricators' orders for new copper stepped up.

But recently the increase in scrap prices has been very small. That indicates that a supply and demand balance has been reached in the copper market and that the price rebound has reached its ceiling. Moreover, new purchases of copper are being made about in line with present refinery production. All this points to at least temporary price stability for refined copper.

Another factor helping to keep prices near their current level will be purchases for the government stockpile. These purchases have been relatively low but will increase later in the year.

Makers of wire and other copper products will have a firmer basis for planning their own prices than during the past few months, when all fabricators were fearful of changes in the primary metal situation. Utilities in turn should have a simpler purchasing problem where copper items are concerned.



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Time-tested since 1932 under all service conditions, subsequent improvements provide additional security in this long-famous network cable.

● Tough, easily handled, Type ANW-insulated, neoprene-jacketed cable incorporates six important advantages . . . important to you for underground duct installation:

1. Better heat and flame resistance—protected by the same neoprene jacket as Anaconda mining cables which must and do meet the severe flame test of the U.S. Bureau of Mines.

2. Higher resistance to duct acids and alkalies—years of experience with Type ANW insulation with only a braid covering showed it to be highly resistant to oils, acids and alkalies encountered in soil and sewage waters. Now it has the additional protection of the neoprene jacket which itself has shown by test and experience, excellent resistance to these agents of destruction.

3. Higher operating temperature—now 75 C copper temperature, continuous duty.

4. Superior aging—Type ANW insulation has demonstrated year after year . . . and now even better . . . long-aging characteristics under severe oxygen bomb and air bomb tests.

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6. More easily handled—passes 180 degree cold-bend test at 0° C without damage to jacket. Cable is lighter, easier to pull. No lead to fuse, insulation and jacket do not support combustion.

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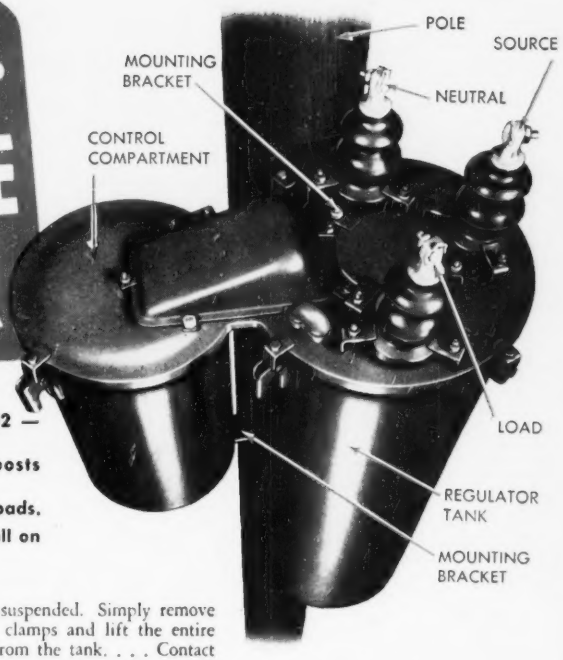
Regulate Rural Voltage ..Don't Just Boost It!

NEW
ALLIS-CHALMERS 5/8% STEP
***Pole-Type* VOLTAGE REGULATOR**



- ✓ **Provides full 20% range of regulation in 32 — 5/8% steps (10% raise and lower)**
- ✓ **Increases line and system capacity — boosts revenue.**
- ✓ **Satisfies customers — helps build additional loads.**
- ✓ **Costs but a few dollars per customer to install on average line.**

PROPER VOLTAGE REGULATION is more than just boosting voltage. It means providing adequate voltage during peak load — adjusting for light load. It means close control — and a wide range of regulation.

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Allis-Chalmers new pole type voltage regulator is fully automatic . . . regulates line voltage through a range of 20% in 32 small 5/8% steps, and holds ± 1 volt band. Rating is 10.8 kva, 15 amp, 7200 v, ± 10% regulation.

Easy maintenance — easy mounting — simple control are provided. First, it is cover-suspended. Simply remove four cover clamps and lift the entire regulator from the tank. . . . Contact life is long. . . . Quick-break mechanism eliminates arcing and pitting. In addition, because of small 5/8% steps, contacts interrupt smaller kva — last longer. Unit is mounted on pole as easily as distribution transformer. . . . Control requires just two simple knob adjustments to set.

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